

GEOLOGICAL SURVEY CIRCULAR 821



Puerto Rico Seismic Network Data Report of
Earthquakes Located by the Programs HYP071
and HYPOELLIPSE

July 1, 1975–December 31, 1977

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By R. L. Dart, A. C. Tarr, D. L. Carver,
and M. K. Wharton

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United States Department of the Interior

CECIL D. ANDRUS, *Secretary*



Geological Survey

H. William Menard, *Director*

CONTENTS

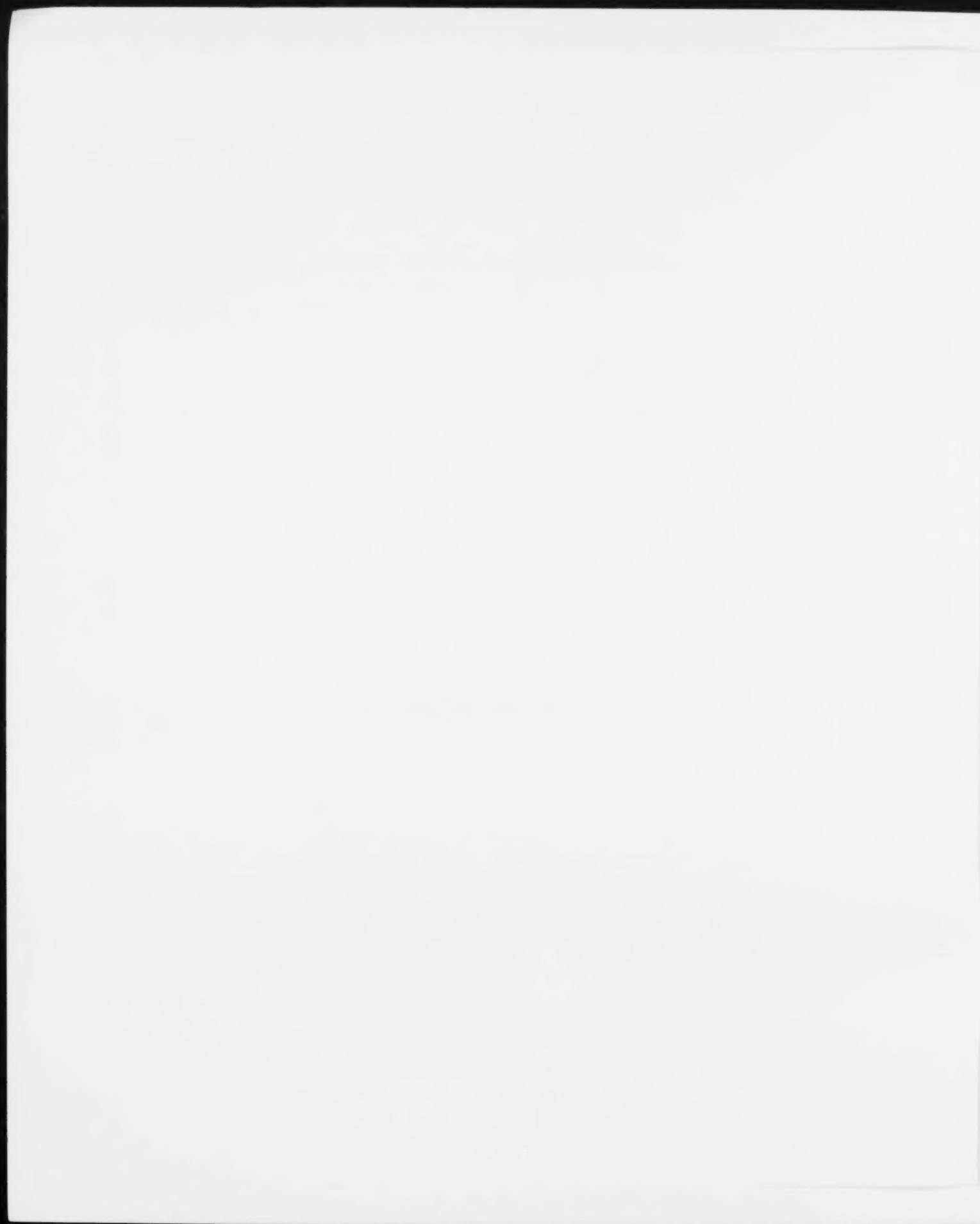
	Page
Introduction-----	1
Puerto Rico Seismic Program-----	1
Puerto Rico Seismic Network-----	1
Seismicity-----	1
Instrumentation-----	1
Data Analysis-----	1
Selected and Relocated Earthquakes-----	5
References-----	5

ILLUSTRATIONS

	Page
Figure 1. Puerto Rico Seismic Network-----	2
2. HYPO71-located earthquakes-----	3
3. Depth profile of earthquakes shown in figure 2-----	4
4. HYPOELLIPSE-located earthquakes, gap size ≤ 360 degrees-----	8
5. Depth profile of earthquakes shown in figure 4-----	9
6. HYPOELLIPSE-located earthquakes, gap size ≤ 270 degrees-----	10
7. Depth profile of earthquakes shown in figure 6-----	11
8. Frequency distribution of earthquake magnitudes-----	12

TABLES

	Page
Table 1. Network Stations-----	2
2. HYPOELLIPSE catalog, July 1-December 31, 1975-----	6
3. References for the 1975 HYPOELLIPSE catalog-----	8
4. Remarks for the 1975 HYPOELLIPSE catalog-----	8
5. HYPOELLIPSE catalog, 1976-----	13
6. References for the 1976 HYPOELLIPSE catalog-----	27
7. Remarks for the 1976 HYPOELLIPSE catalog-----	27
8. HYPOELLIPSE catalog, 1977-----	29
9. References for the 1977 HYPOELLIPSE catalog-----	41
10. Remarks for the 1977 HYPOELLIPSE catalog-----	42



PUERTO RICO SEISMIC NETWORK DATA REPORT OF
EARTHQUAKES LOCATED BY THE PROGRAMS HYP071
AND HYPOELLIPSE
JULY 1, 1975-DECEMBER 31, 1977

By Richard L. Dart, Arthur C. Tarr,
David L. Carver, and Mary Kay Wharton

INTRODUCTION

This report makes available to interested parties preliminary results of analysis of data on the best located earthquakes for a 30-month period, July 1, 1975, through December 31, 1977. The overall objective of the Puerto Rico Seismic Program, the regional seismicity, network instrumentation, data analysis, and selected earthquakes are briefly discussed.

PUERTO RICO SEISMIC PROGRAM

The Puerto Rico Seismic Program is managed by the U.S. Geological Survey, in cooperation with the Puerto Rico Water Resources Authority (PRWRA). The principal objective of the program is the assessment of regional and local seismicity of the Puerto Rico region and the associated seismic hazard (Tarr and King, 1976). A number of large, destructive, historical earthquakes have occurred in the vicinity of Puerto Rico; but, until the program began in 1974, little was understood about the relationship of the seismicity to known or suspected geological structures. Accomplishment of the program objective is fundamental to the assessment of the earthquake potential and the associated seismic risk of Puerto Rico.

PUERTO RICO SEISMIC NETWORK (PRSN)

The recording of seismic data began in August 1974 with the installation of a three-station temporary network. A permanent network of 10 stations began operation in November 1975. Presently the network consists of 15 stations (fig. 1). The station configuration is designed for detection and location of local and near-regional earthquakes. The PRSN is presently recording an average of 10 earthquakes per day, with an accuracy previously unobtainable (Schell and Tarr, 1978) (fig. 2). The entire list of stations, past and present, is found in table 1.

SEISMICITY

The Puerto Rico segment of the Antilles Arc is exceedingly complex (Tarr and King, 1976). The results from data collected by the PRSN have shed new light on the tectonics of the northeastern Caribbean region by firmly establishing the existence and configuration of the North American lithospheric plate below the Puerto Rico-Island block (Schell and Tarr, 1978). Intermediate-depth earthquakes located by PRSN form a prominent inclined seismic zone dipping about 45-60 degrees from the Puerto Rico Trench to a depth of about 150 km under the island (fig. 3) (Carver and Tarr, 1976). For more information, see Donnelly, 1964; Brace and Vogt, 1970; Nagle, 1971; and Malfait and Dinkelman, 1972.

INSTRUMENTATION

The PRSN currently consists of 19 seismometers at 15 permanent station sites (15 vertical and 4 horizontal Geotech S-13 seismometers). Each station has one or more seismometers, an amplifier transmitter package, and an antenna tower. All stations transmit their data via FM radio telemetry and microwave link to the central recording site located at the San Juan Geophysical Observatory at Cayey, Puerto Rico. A 20-channel Develocorder (galvanometric, automatic film-developing recording system) at the observatory records all 19 data channels and WWVB timing onto a continuous 16-mm film (Tarr and King, 1976).

DATA ANALYSIS

Record interpretation, data processing, and collection of hypocenter data and related-event parameters were performed by the U.S. Geological Survey (Dart and others, 1979). All hypocenter data were first computed by the program HYP071 (Lee and Lahr, 1975). This program had been revised (N. S. Davids, unpub. data, 197-) and

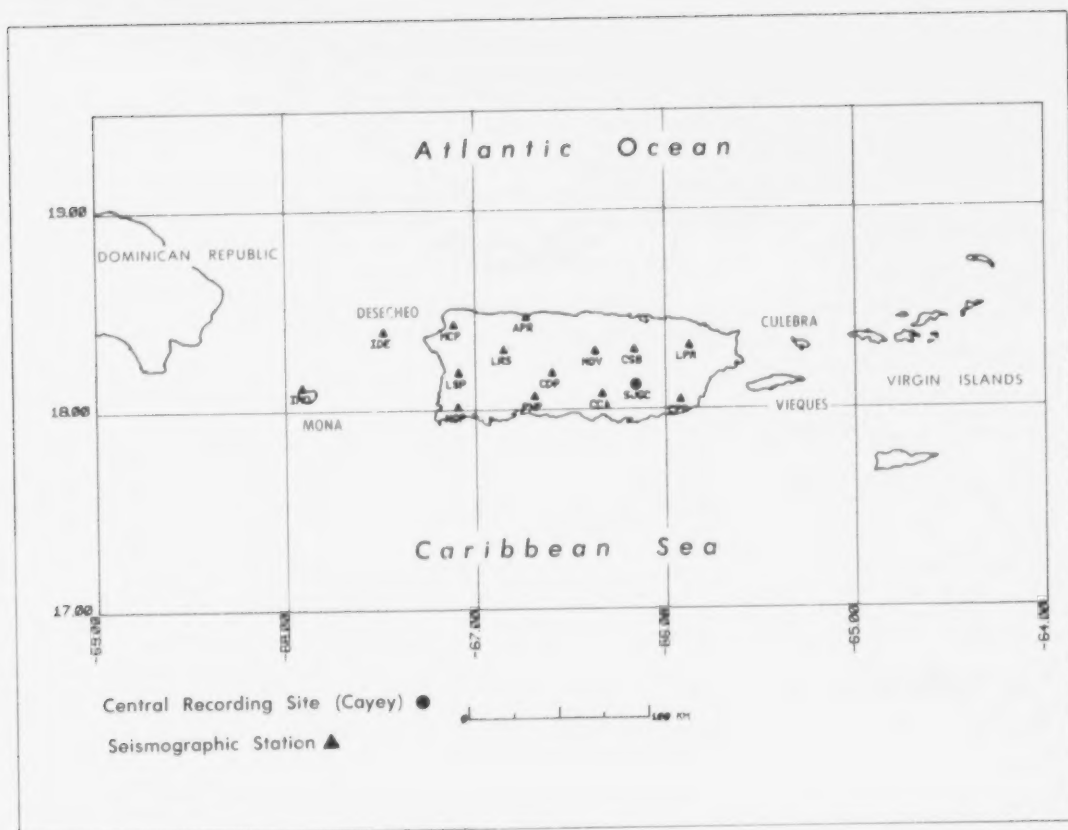


Figure 1.--Region monitored by the Puerto Rico Seismic Network.
Station SJGC is located at the central recording site.

Table 1.--Puerto Rico Seismic Network stations

Code	Latitude N.		Longitude W.		Elevation m	Dates of operation
	deg	min	deg	min		
CAG	18	14.37	66	02.12	350	08/16/74-07/17/75
DOS	18	19.77	66	40.73	400	08/16/74-07/17/75
MPR	18	12.77	67	08.36	10	09/--/73-11/14/75
PON	18	00.20	66	36.83	50	08/16/74-07/17/75
SJG	18	06.70	66	09.00	457	10/12/74-02/22/76
SJGC	18	06.70	66	09.00	457	01/22/76-PRESENT
CYP	18	06.70	66	09.00	457	08/30/76-03/07/77
APR	18	27.46	66	43.77	53	11/14/75-PRESENT
CSB	18	17.35	66	09.36	480	07/30/75-PRESENT
CDP	18	10.51	66	35.48	1300	07/30/75-PRESENT
EYP	18	18.76	65	47.47	1060	07/30/75-08/09/76
IMR	18	05.30	67	50.83	55	11/14/75-01/10/77

Table 1.--Puerto Rico Seismic Network stations--Continued

Code	Latitude N.		Longitude W.		Elevation	Dates of operation
	deg	min	deg	min	m	
MCP	18	25.14	67	06.64	250	11/14/75-PRESENT
LSP	18	10.66	67	05.17	390	11/14/75-PRESENT
CPD	18	05.33	65	54.93	370	07/30/75-PRESENT
PNP	18	03.50	66	41.02	200	07/30/75-PRESENT
LPR	18	18.53	65	52.18	580	08/10/76-PRESENT
MGP	18	00.46	67	05.35	60	11/14/75-PRESENT
CCA	18	04.18	66	19.58	269	02/15/77-PRESENT
MOV	18	16.92	66	22.00	485	02/15/77-PRESENT
LRS	18	17.60	66	50.70	440	02/15/77-PRESENT
IDE	18	23.19	67	29.77	218	02/15/77-PRESENT
IMO	18	06.69	67	54.51	84	02/15/77-PRESENT

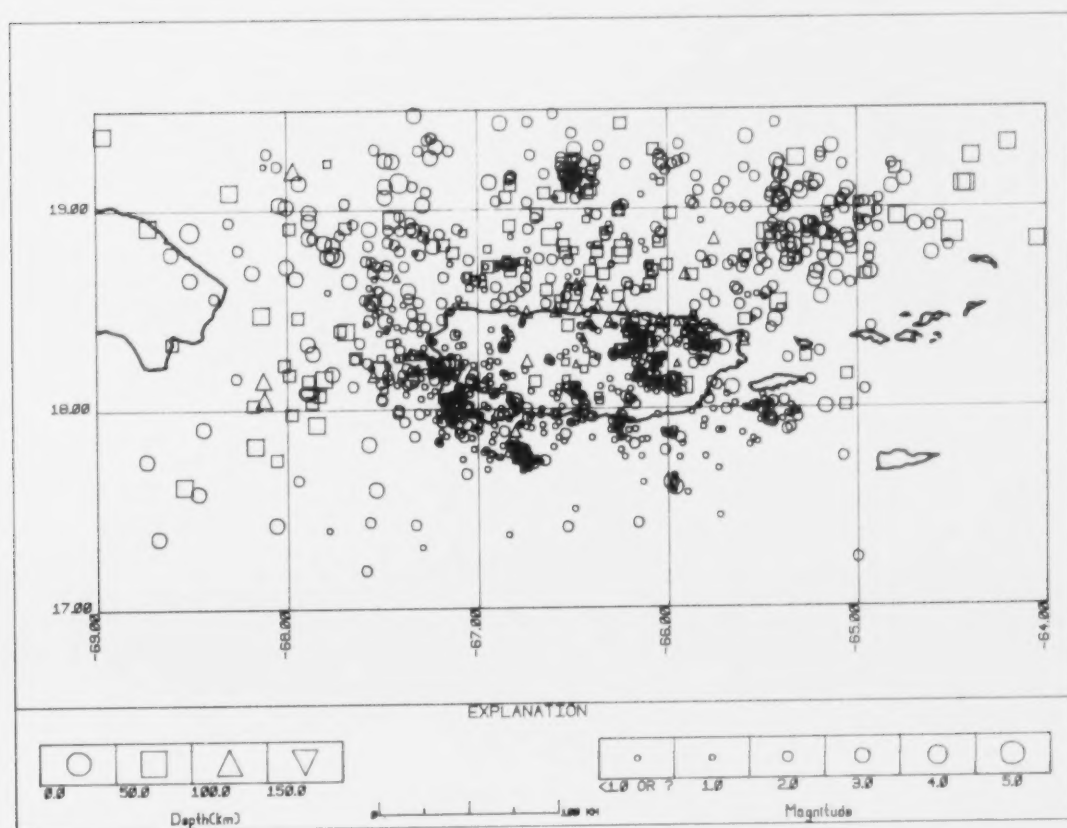


Figure 2.--Earthquakes located within the Puerto Rico Region, July, 1, 1975-December 31, 1977, using the HYP071 program.

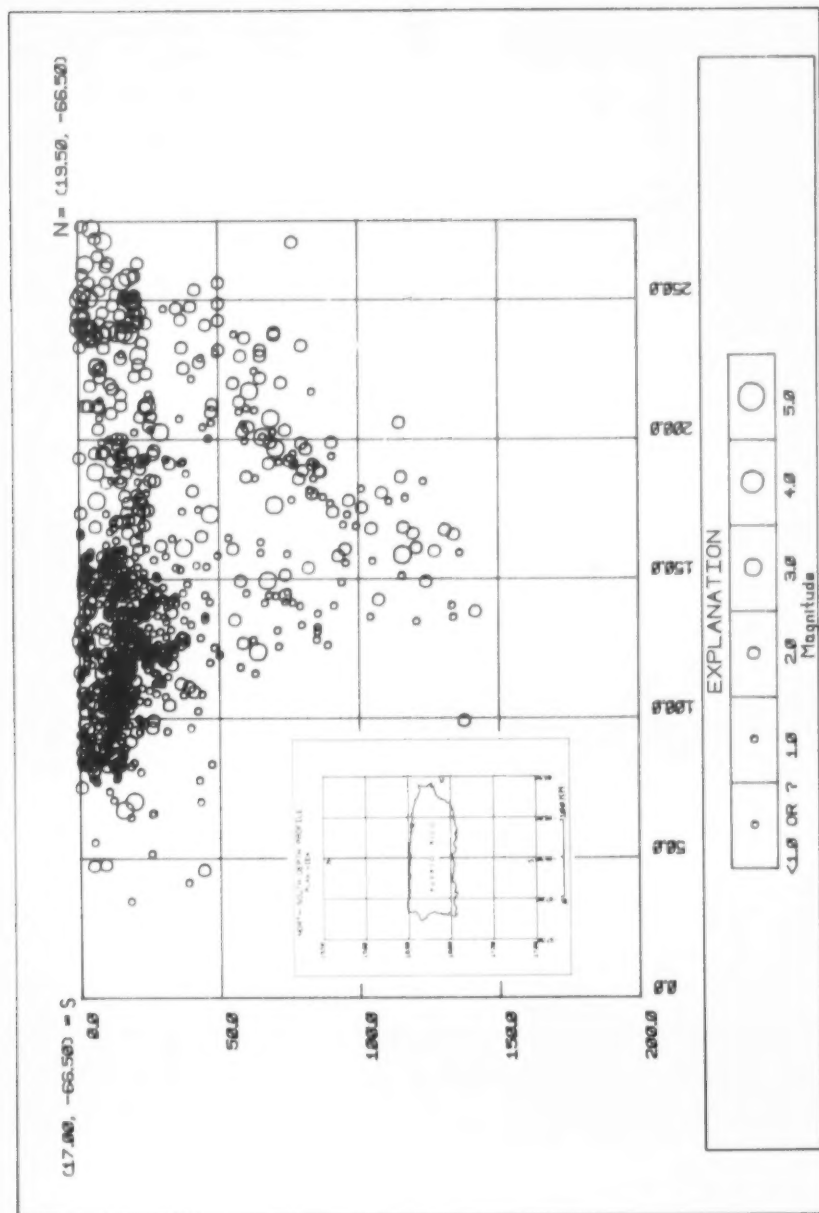


Figure 3.--Depth profile of the earthquakes plotted in figure 2 and within the area bounded by lat 17° and 19.5° N. and by long 65.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert.) Depth and horizontal distance are measured in kilometers.

made compatible with the U.S. Geological Survey's Honeywell MULTICS computer. All HYPO71 hypocenter locations were then relocated using HYPOELLIPSE (Lahr, 1979) and are listed in tables 2, 5, and 8. Duration magnitudes were calculated for Puerto Rico earthquakes. The earthquake data catalog (tables 2, 5, and 8) for the Puerto Rico region (fig. 1) is considered complete for magnitudes above 3.1. This "completeness threshold" was determined from the cumulative frequency-of-occurrences graph (fig. 8). A b-value ($b=1.14 \pm 0.01$) was obtained from a fit of a straight line to the incremental curve of occurrences using a weighted least squares for occurrences and has the equation $\log N = 5.06 - 1.14 M$. This line was calculated for occurrences at 0.10 magnitude intervals (3.3-3.9). Detection and accurate location of earthquakes become increasingly more difficult for events with magnitudes below 3.3.

SELECTED AND RELOCATED EARTHQUAKES

The earthquakes listed in this report were initially selected on the basis of their location using their HYPO71 hypocenter solutions; the constraints were for no less than four station observations and RMS (root-mean-square of the travel-time residuals, in seconds) ERH (standard error of the epicenter, in kilometers), and ERZ (standard error in depth, in kilometers) are constrained to values of less than or equal to 0.35 s, 25 km, and 50 km respectively. These selected events are plotted in figures 2 and 3. The selected earthquakes were then relocated using HYPOELLIPSE and the resulting data grouped according to the length of the maximum axis of the error ellipsoid (≤ 10 km) and the gap size (≤ 270 and ≤ 360 degrees). Gap size is defined as the largest azimuthal separation between stations (Lee and Lahr, 1975). Groupings of the higher quality hypocenters locations are shown in figures 4, 5, 6, and 7, which illustrate changes within this higher quality data set when the gap size is controlled.

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Table 2.--Catalog of 1975 earthquakes located by the HYPOELLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; χ , confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 4; *, remarks cited by catalog name and index in table 3; leaders (.....) designate instances when data values are unknown or not computed]

Catalog	Name	Index	Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s)	Hypo Q auth *									
			yr	mo	d	h	min s				M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)			Tr Pl	%							
PRN75	1	1975	7	30	16	55	7.020E	18.333	-66.093	1.4	1.1D	2.6	100	3	7.1	8	19	45.9	198	70	68	0.12	5	258	55	D	1 *
	2	1975	8	1	20	2	48.020	18.623	-66.581	2.8	2.0D	3.3	65	1	5.3	335	3	>99.9	174	86	68	0.19	7	300	63	D	1
	3	1975	8	4	5	2	37.920	18.175	-66.989	9.2	2.2D	3.2	94	8	5.5	186	16	2.0	339	72	68	0.15	8	330	89	D	1
	4	1975	8	4	7	36	26.970	18.853	-66.341	16.3	1.4D	3.2	240	0	7.4	330	1	>99.9	149	88	68	0.11	6	311	95	D	1
	5	1975	8	9	7	18	19.550	18.879	-65.559	12.1	2.4D	10.5	315	3	7.0	223	30	51.1	51	59	68	0.16	6	329	..	D	1
	6	1975	8	14	23	12	45.330	18.157	-67.050	9.8	2.7D	7.2	103	3	23.9	194	19	5.1	4	70	68	0.39	9	336	96	D	1
	7	1975	8	23	17	27	23.070	18.601	-66.520	8.7	1.9D	0.8	60	28	1.3	309	34	2.3	180	43	68	0.08	9	276	67	C	1
	8	1975	8	24	3	24	59.080	18.266	-66.609	15.8	1.0D	2.8	328	4	0.8	58	6	27.0	205	82	68	0.06	6	248	78	D	1
	9	1975	8	25	8	16	51.100	17.667	-66.158	35.1	1.3D	1.9	259	8	3.9	167	13	11.7	20	74	68	0.09	6	276	71	D	1
	10	1975	8	29	13	13	23.470	18.815	-65.128	23.9	3.0D	27.1	323	0	>99.9	233	8	10.3	53	82	68	0.13	4	341	..	D	1
	11	1975	9	14	20	19	5.070	19.066	-65.329	4.8	2.7D	17.3	334	14	7.1	234	35	80.6	83	51	68	0.08	5	338	..	D	1
	12	1975	9	15	2	41	7.120E	18.222	-67.120	0.4	2.6D	1.8	87	9	10.9	180	16	5.4	329	71	68	0.27	7	214	..	D	1 *
	13	1975	9	15	4	22	56.900	19.099	-67.488	18.2	3.1D	2.3	5	21	11.3	257	39	3.2	117	43	68	0.07	6	316	..	D	1
	14	1975	9	15	22	46	50.070	19.057	-65.827	6.7	2.4D	5.5	328	11	12.3	64	28	3.7	219	59	68	0.12	6	318	..	D	1
	15	1975	9	15	23	14	5.600	19.036	-65.739	1.1	2.4D	5.1	292	3	3.4	200	33	>99.9	27	56	68	0.10	6	327	..	D	1
	16	1975	9	22	20	16	12.080	18.256	-66.511	8.5	1.0D	0.4	78	4	1.9	346	22	12.8	178	67	68	0.04	6	251	67	D	1
	17	1975	10	1	20	17	25.770	18.954	-65.250	10.0	2.6D	15.1	307	11	5.6	211	30	56.0	55	57	68	0.22	6	338	..	D	1
	18	1975	10	2	20	2	48.390	18.276	-66.535	13.3	0.9D	9.9	169	12	2.1	73	25	4.6	282	61	68	0.17	6	259	71	D	1
	19	1975	10	14	00	33	56.980	18.086	-66.035	25.5	2.2D	4.3	319	8	2.2	223	33	3.7	61	55	68	0.09	6	297	69	D	1
	20	1975	11	15	16	27	1.330E	18.328	-66.143		2.5	266	0	4.6	356	0	>99.9	90	90	68	0.28	7	192	50	D	1 *	
	21	1975	11	15	19	27	29.320	17.990	-66.466	16.2	1.1D	3.5	191	3	1.1	101	8	21.6	301	81	68	0.12	7	203	47	D	1
	22	1975	11	15	19	54	4.310	18.110	-65.551	42.9	2.7D	11.6	352	30	50.3	103	32	6.6	230	43	68	0.35	8	307	63	D	1
	23	1975	11	15	21	25	35.140	18.884	-65.349	8.6	2.2D	10.5	316	18	7.3	213	35	60.3	69	49	68	0.30	7	333	..	D	1
	24	1975	11	16	12	51	56.350	17.850	-67.951	84.1	2.3D	16.5	353	1	3.0	263	30	8.2	85	59	68	0.10	7	348	..	D	1
	25	1975	11	17	20	34	43.570	18.602	-67.000	20.1	1.7D	1.5	80	13	3.0	345	22	4.5	198	64	68	0.20	14	261	48	D	1
	26	1975	11	18	19	12	28.170	17.805	-66.888	15.1	1.1D	5.7	179	3	2.1	88	24	2.5	275	65	68	0.22	8	279	46	D	1
	27	1975	11	19	4	32	49.010	18.002	-66.462	16.0	0.7D	6.6	191	5	2.2	100	8	42.9	312	80	68	0.24	7	199	45	D	1
	28	1975	11	19	7	10	22.690	18.716	-67.479	8.8	1.9D	4.3	120	6	7.3	211	12	3.1	3	76	68	0.24	10	316	89	D	1
	29	1975	11	21	10	58	33.890	17.936	-66.280	7.0	1.0D	0.8	274	0	2.9	184	4	13.8	4	86	68	0.09	7	214	42	D	1
	30	1975	11	22	31	35	38.760	18.889	-66.586	25.9		1.9	266	0	3.3	176	15	29.9	355	75	68	0.10	6	261	95	D	1
	31	1975	11	23	12	31	32.160	18.110	-66.734	23.1	0.8D	2.7	351	0	0.8	261	14	3.9	81	76	68	0.08	7	143	38	C	1
	32	1975	11	23	19	36	7.260	18.092	-66.541	16.3	0.7D	1.3	73	21	3.0	179	35	20.1	319	47	68	0.09	6	195	46	D	1
	33	1975	11	24	5	15.230	18.139	-67.041	15.7	1.2D	36.7	214	21	7.9	323	40	4.1	103	42	68	0.28	6	217	48	D	1	
	34	1975	11	24	8	10	26.480	18.012	-67.087	20.2	0.7D	2.9	90	34	5.3	331	35	10.4	209	36	68	0.04	5	155	43	D	1
	35	1975	11	24	14	50	37.090	18.106	-67.112	19.4	0.8D	1.2	57	32	3.1	301	36	9.8	177	38	68	0.06	6	274	56	D	1

Table 2.--Catalog of 1975 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes			Rms No.			Hypo auth *
	yr	mo	d h min s				a (km)	Tr pl	b (km)	Tr pl	c (km)	Tr pl	%
PRN75	36	1975	11 27 15 10 28.630	18.829	-67.466	5.6	2.30	5.2 132 18	9.3 229 21	3.6	4 61 68 0.16	7 332 99 D	1
	37	1975	11 28 00 42 42.510	18.036	-67.013	11.4	1.70	4.8 3 20	3.4 104 28	2.4	243 54 68 0.16	10 159 35 C	1
	38	1975	11 28 16 38 3.020	18.332	-67.374	14.6	1.30	4.8 311 12	3.0 47 27	1.6	200 60 68 0.14	8 291 47 D	1
	39	1975	11 29 4 50 19.660	18.068	-67.097	7.8	1.60	1.5 338 9	1.7 75 38	3.3	237 50 68 0.22	11 185 39 C	1
	40	1975	11 30 14 5 17.580	17.824	-66.767	3.0	1.50	1.7 263 0	2.8 173 5	54.8	352 85 68 0.24	8 226 43 D	1
	41	1975	12 1 11 5 55.960	18.036	-65.536	15.3	1.40	4.5 24 0	5.8 294 35	>99.9	114 55 68 0.32	5 312 71 D	1
	42	1975	12 1 19 44 37.910	18.420	-66.408	15.5	1.30	55.4 349 1	2.8 259 6	3.7	89 83 68	4 262 49 D	1
	43	1975	12 1 23 28 39.130	18.863	-67.812	16.6	3.20	2.6 55 14	15.1 150 18	5.9	290 66 68 0.17	11 283 .. D	1
	44	1975	12 2 11 31 47.800	17.836	-67.167	1.8	1.60	3.6 107 4	6.8 200 37	13.9	11 52 68 0.26	8 300 57 D	1
	45	1975	12 3 14 38 5.300	18.751	-66.829	62.9	1.70	5.6 271 4	8.5 44	44.0	176 45 68 0.17	6 283 88 D	1
	46	1975	12 4 20 28 29.990	18.002	-67.103	16.8	1.20	1.7 104 18	2.9 358 40	7.0	212 44 68 0.12	7 277 45 D	1
	47	1975	12 5 15 10 42.610	18.425	-65.941	15.3	1.10	2.3 271 4	10.0 1 5	3.2	142 83 68 0.10	5 252 43 D	1
	48	1975	12 5 20 40 38.030	17.874	-67.154	13.1	1.70	7.5 14 0	2.6 284 29	2.3	104 61 68 0.17	7 297 54 D	1
	49	1975	12 6 1 2 52.180	18.190	-66.566	14.3	0.80	7.1 328 15	1.1 62 16	2.8	197 67 68 0.09	6 197 45 D	1
	50	1975	12 6 4 32 8.000	18.033	-67.111	11.5	0.90	2.6 305 0	3.8 35 34	11.7	215 56 68 0.24	5 220 43 D	1
	51	1975	12 6 22 26 49.580	19.192	-66.564	15.5	2.30	3.9 127 19	5.3 224 20	27.6	357 61 68 0.28	11 298 .. D	1
	52	1975	12 7 15 16 52.080	18.831	-66.816	56.1	2.00	3.9 67 12	6.4 333 18	13.2	188 68 68 0.28	11 276 76 D	1
	53	1975	12 8 3 13 14.660	18.854	-65.347	9.9	3.10	7.8 190 14	9.8 288 30	52.6	78 56 68 0.38	11 318 .. D	1
	54	1975	12 8 18 31 10.230	17.849	-66.835	8.9	0.90	1.6 264 1	4.1 174 7	24.6	3 82 68 0.10	6 267 44 D	1
	55	1975	12 9 1 1 22.830	18.634	-66.816	73.8	1.80	4.3 91 7	8.8 182 9	5.8	324 78 68 0.24	10 246 56 D	1
	56	1975	12 9 20 55 39.750	17.998	-66.701	13.5	1.90	5.8 270 22	12.2 15 32	2.5	151 49 68 0.22	5 270 66 D	1
	57	1975	12 9 23 5 57.830	18.266	-66.266	10.2	2.10	2.5 10 5	1.1 277 24	3.1	111 65 68 0.24	12 144 36 C	1
	58	1975	12 10 3 41 34.140	17.881	-67.175	5.4	1.50	4.4 128 22	19.8 22 34	7.0	244 47 58 0.27	7 284 56 D	1
	59	1975	12 10 17 23 9.990	17.843	-66.763	3.8	1.10	1.3 266 0	2.6 176 6	37.8	355 84 68 0.11	7 221 41 D	1
	60	1975	12 11 00 36 47.250	18.441	-67.508	10.8	1.30	70.1 112 7	6.5 204 16	4.0	0 72 68 0.13	6 316 65 D	1
	61	1975	12 12 3 20 29.160	17.898	-66.274	1.5	0.90	2.4 264 1	5.4 174 1	>99.9	39 88 68 0.18	6 225 46 D	1
	62	1975	12 14 8 40 31.230	18.550	-66.949	17.9	1.50	1.5 82 5	3.4 173 17	7.7	337 72 68 0.13	9 239 44 D	1
	63	1975	12 17 22 55 20.480	18.338	-66.294	115.8	2.60	3.8 270 20	13.4 168 28	7.5	31 54 68 0.19	9 167 36 D	1
	64	1975	12 21 00 18 32.040	18.069	-67.106	11.5	1.20	2.9 83 31	4.4 330 34	5.2	204 40 68 0.21	7 205 45 D	1
	65	1975	12 23 5 22 7.140	18.708	-66.917	72.0	2.00	4.4 65 23	32.1 176 39	7.4	313 41 63 0.23	8 273 76 D	1
	66	1975	12 23 14 37 41.180	18.811	-64.611	7.0	2.80	18.4 331 0	5.3 241 42	33.7	61 48 68 0.25	8 343 .. D	1
	67	1975	12 24 10 6 51.020	18.573	-66.779	77.2	2.50	1.7 87 6	4.5 178 13	2.8	333 75 68 0.15	13 249 54 D	1
	68	1975	12 27 11 56 43.580	17.997	-66.976	29.3	1.10	3.0 90 8	12.9 188 44	8.8	352 44 68 0.30	5 198 32 D	1
	69	1975	12 28 16 45 9.950	17.905	-66.842	12.9	1.60	4.9 91 20	23.3 347 33	7.8	206 49 68 0.42	7 212 40 D	1
	70	1975	12 29 5 27 18.670	18.264	-67.635	25.9	2.00	19.4 219 10	10.7 121 37	5.4	321 51 68 0.33	5 333 .. D	1
	71	1975	12 29 8 14 31.210	19.173	-66.819	45.5	3.20	5.4 76 4	39.0 167 20	29.2	336 69 68 0.24	9 297 .. D	1
	72	1975	12 29 22 32 48.410	18.885	-67.465	30.8	2.00	13.9 102 1	7.1 12 4	>99.9	206 75 68 0.05	5 318 .. D	1

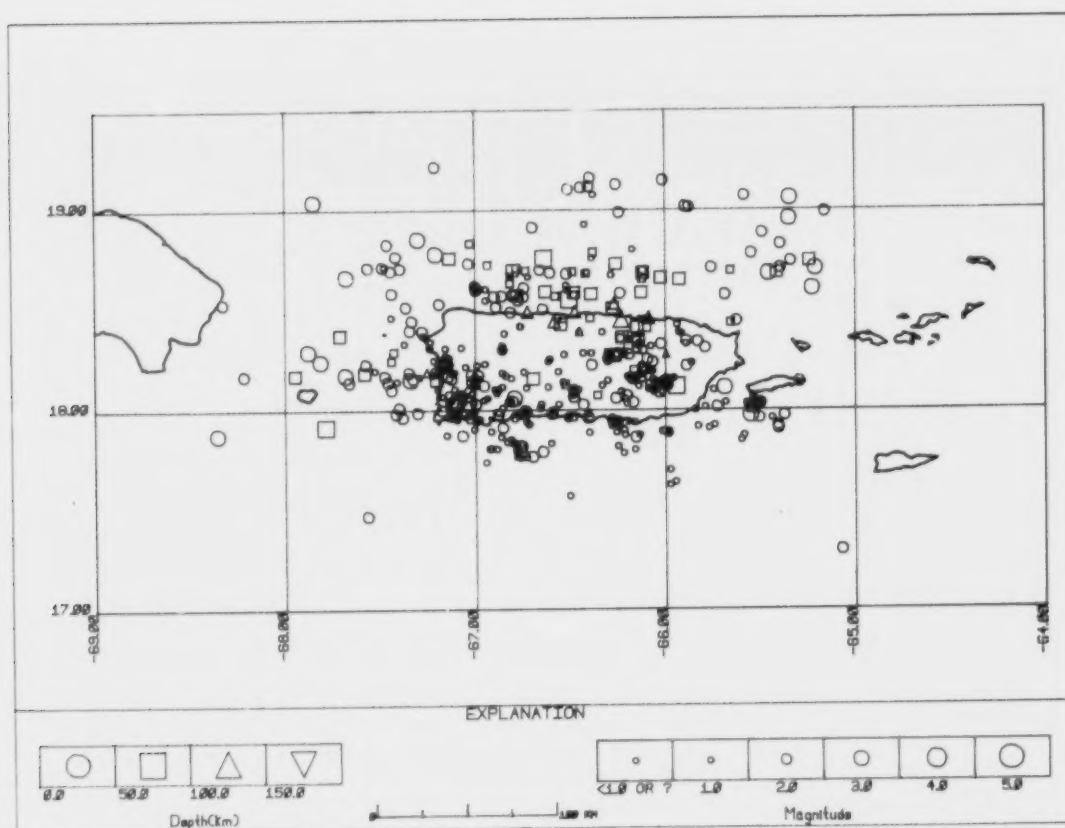


Figure 4.--Earthquakes located within the Puerto Rico region, July 1, 1975-December 31, 1977, using the HYPOELLIPSE program. All earthquakes plotted have the maximum axis of the error ellipsoid ≤ 10 km and a gap size of $\leq 360^\circ$.

Table 3.--References for catalog of 1975 earthquakes located by the HYPOELLIPSE program
[Cat, catalog; Auth no., authority number cited in table 2]

Cat	Auth	References
Name	no.	
PRN75	1	U.S. Geological Survey, this report.

Table 4.--Remarks for catalog of 1975 earthquakes located by the HYPOELLIPSE program

Catalog	Remarks
Name	Index
PRN75	1 Probable blast attributed to road construction or quarries.
	12 Do.
	20 Do.

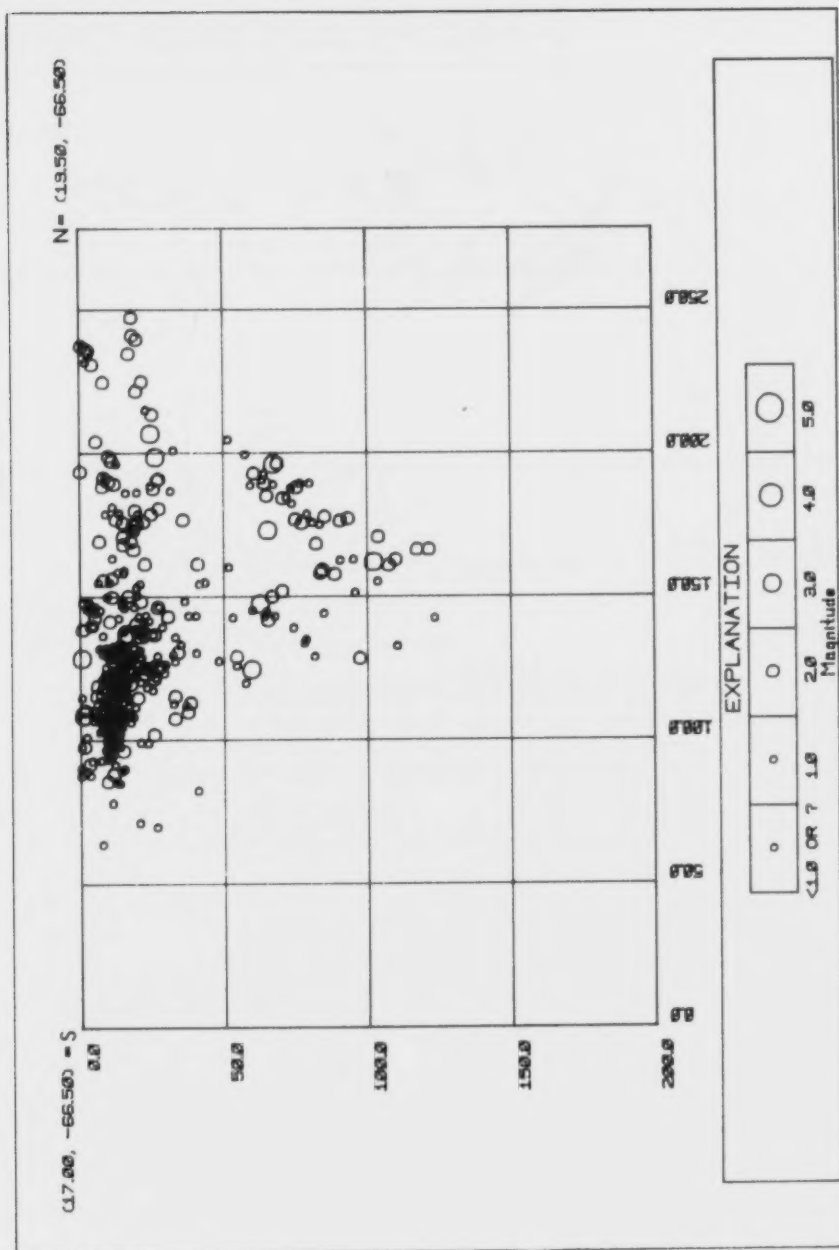


Figure 5.--Depth profile of the earthquakes plotted in figure 4 and within the area bounded by lat 17° and 19.5° N. and by long 65.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert, fig. 3.) Depth and horizontal distance are measured in kilometers.

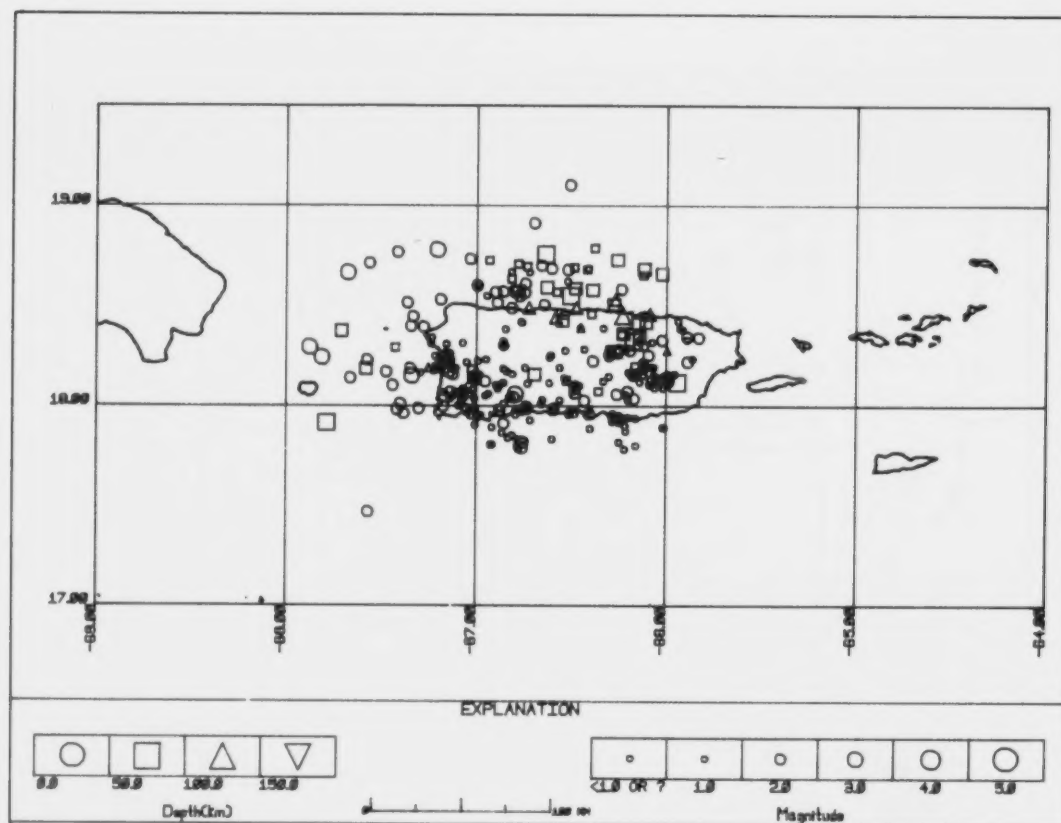


Figure 6.--Earthquakes located within the Puerto Rico region, July 1, 1975-December 31, 1977, using the HYPOELLIPSE program. All earthquakes plotted have the maximum axis of the error ellipsoid ≤ 10 km and a gap size of $\leq 270^\circ$.

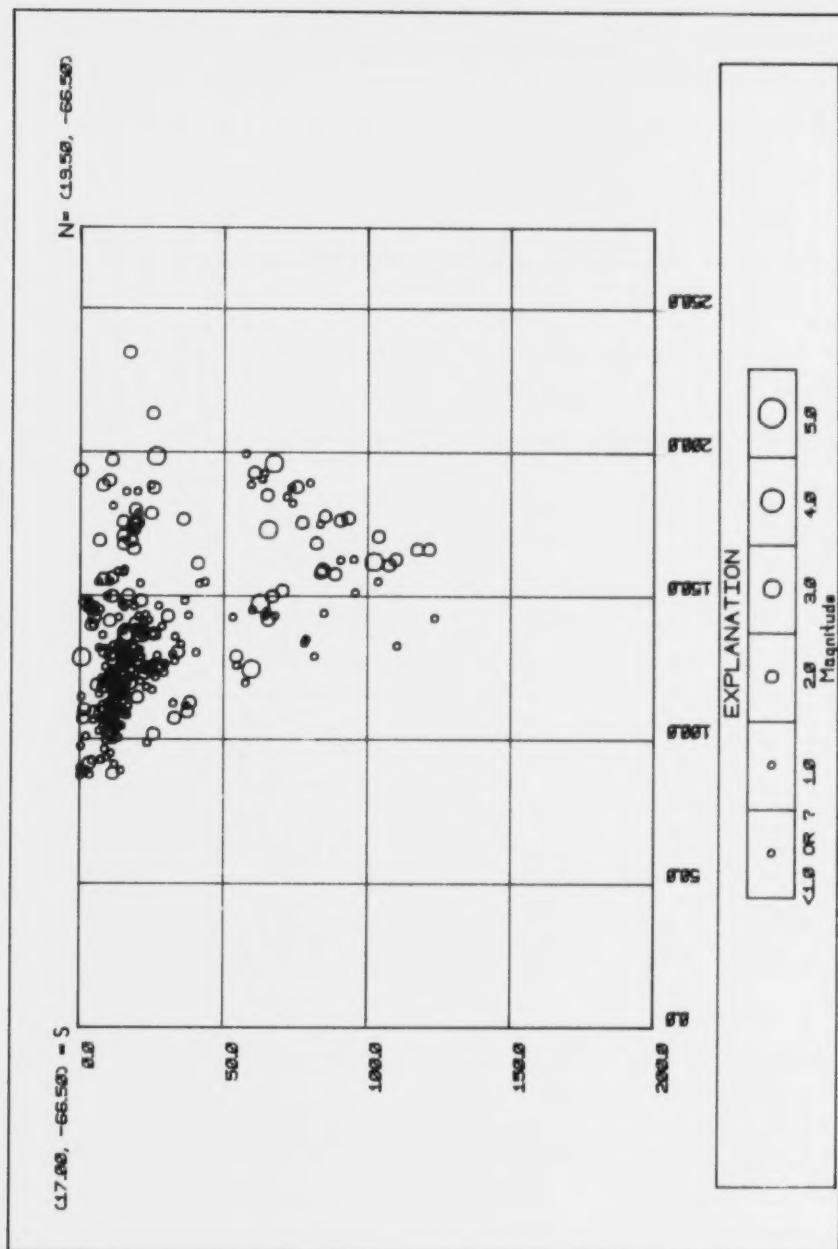


Figure 7.--Depth profile of the earthquake plotted in figure 6 and within the area bounded by lat 17° and 19.5° N. and by long 66.5° and 67.5° W. Hypocenters are projected into a north-south plane through long 66.5° W. (See map insert, fig. 3.) Depth and horizontal distance are measured in kilometers.

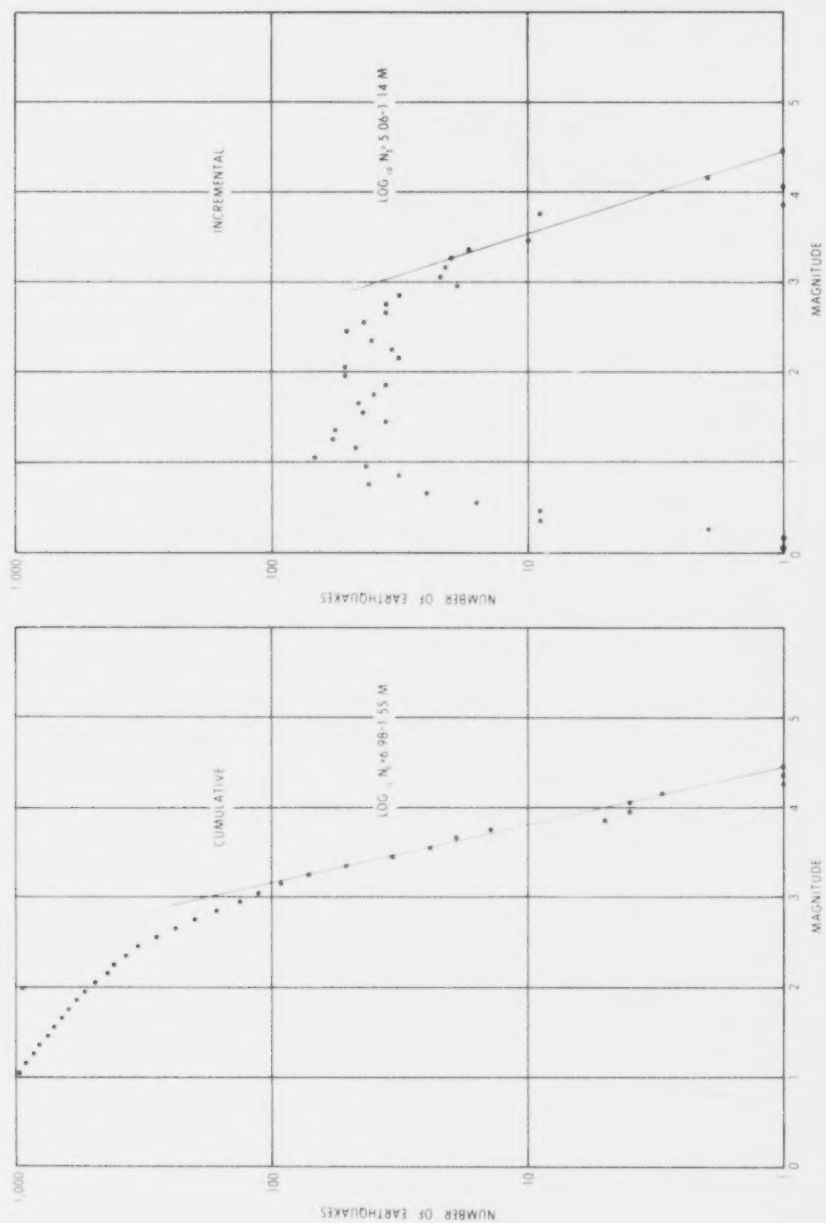


Figure 8.--Incremental and cumulative frequency distribution for duration magnitudes of earthquakes recorded within the Puerto Rico region. Both graphs show a straight-line, weighted least-squares fit to the data. Slopes were calculated for occurrences at 0.10 magnitude intervals. Values for b were 1.14 and 1.55 for incremental and cumulative distributions, respectively.

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; %, confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 6; *, remarks cited by catalog name and index in table 7; leaders (.....) designate instances when data values are unknown or not computed]

Catalog		Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.			Hypo						
Name	Index	yr	mo	d	h	m	s	(deg)	(deg)	(km)	M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	(s)	ob	Gap	DM	auth	*	
PRN76	1	1976	1	3	13	41	20.210	18.499	-65.824	14.8	2.30	42.8	36 11	5.1	136 41	2.0	295	46	68	0.09	6	275	52	D	1
	2	1976	1	5	5	11	13.220	17.870	-66.289		1.20	1.9	267 0	4.1	357 0	>99.9	90	89	68	0.30	8	227	47	D	1
	3	1976	1	5	20	58	39.290	17.874	-66.276	24.5	1.10	1.3	270 4	3.3	180 8	15.2	27	81	68	0.10	6	280	48	D	1
	4	1976	1	7	2	3	3.760	18.983	-64.943	17.7	2.90	26.9	129 19	7.3	232 34	16.6	14	49	68	0.32	8	332	..	D	1
	5	1976	1	7	3	27	59.550	18.076	-67.060	21.0	1.00	2.4	0 8	1.5	95 33	4.8	259	55	68	0.14	7	144	40	C	1
	6	1976	1	7	21	32	27.540	18.676	-66.720	25.6	1.70	7.2	124 28	5.8	13 34	9.8	243	43	68	0.38	9	271	67	D	1
	7	1976	1	7	23	3	34.600	17.979	-66.883	7.2	2.00	1.4	81 4	7.1	347 43	3.6	176	46	68	0.18	8	192	31	D	1
	8	1976	1	7	23	3	45.100	18.283	-66.221	67.7	1.20	9.0	31 24	2.5	283 33	4.1	150	46	68	0.09	6	191	42	D	1
	9	1976	1	8	11	35	1.070	17.811	-66.809	15.1	0.80	3.2	256 9	15.5	350 26	5.9	148	62	68	0.01	5	280	50	D	1
	10	1976	1	9	20	3	9.620	18.439	-66.810	22.1	1.00	4.4	159 17	>99.9	61 24	12.7	280	59	68	0.10	4	295	..	D	1
	11	1976	1	11	57	45	40.0	18.591	-65.643	18.9	2.60	16.0	228 10	2.6	320 16	6.8	106	71	68	0.10	8	303	68	D	1
	12	1976	1	12	1	31	53.470	18.062	-66.424	25.2	...	2.5	83 15	6.2	180 25	16.3	325	60	68	0.11	6	176	38	D	1
	13	1976	1	12	2	59	29.280	18.405	-65.903	15.3	2.50	39.2	14 7	10.5	106 19	8.0	265	69	68	0.10	5	246	41	D	1
	14	1976	1	12	18	13	8.690	18.454	-65.705	20.1	2.50	25.0	48 14	3.5	308 34	7.3	157	52	68	0.13	7	308	51	D	1
	15	1976	1	13	17	12	27.680	18.164	-67.006	16.6	1.20	1.8	168 8	0.9	74 23	7.9	275	65	68	0.09	8	161	36	C	1
	16	1976	1	13	17	18	1.860	17.717	-67.033	0.2	2.70	2.0	109 5	12.4	16 35	6.5	206	54	68	0.15	8	284	53	D	1
	17	1976	1	14	11	27	50.970	17.921	-66.286	6.6	1.60	0.9	265 10	4.4	5 44	2.6	165	44	68	0.09	7	205	43	D	1
	18	1976	1	15	00	45	5.030	18.994	-66.824	50.4	2.30	10.0	275 3	17.4	6 21	89.7	177	68	68	0.19	6	301	..	D	1
	19	1976	1	15	9	52	20.070	18.865	-67.309	22.2	2.40	6.2	145 12	2.7	46 38	11.8	249	49	68	0.11	7	311	..	D	1
	20	1976	1	16	7	55	7.650	17.999	-66.592	16.7	1.60	1.6	92 13	2.7	191 33	5.1	344	53	68	0.17	9	185	53	D	1
	21	1976	1	17	3	45	22.250	18.361	-66.228	70.2	2.70	1.1	277 19	4.8	179 21	3.1	46	60	68	0.06	8	239	44	D	1
	22	1976	1	19	20	19	28.580	18.138	-66.540	17.4	0.90	1.1	79 29	9.6	325 37	2.2	196	39	68	0.07	6	141	44	D	1
	23	1976	1	20	3	40	39.490	17.980	-66.594	16.1	1.70	1.1	89 9	7.3	353 29	3.4	194	59	68	0.13	8	189	53	D	1
	24	1976	1	22	18	46	13.350	18.247	-66.474	29.5	1.00	76.9	335 9	6.6	68 17	17.6	219	70	68		4	205	34	D	1
	25	1976	1	23	3	33	30.310	18.945	-65.533	9.0	3.10	2.2	309 3	2.0	217 30	11.9	45	59	68	0.11	8	319	..	D	1
	26	1976	1	25	10	55	5.600	18.165	-67.297	14.3	1.60	0.9	353 1	4.1	263 3	1.4	102	86	68	0.04	6	267	34	D	1
	27	1976	1	26	00	3	56.430	18.595	-65.770	13.5	2.30	16.1	306 1	>99.9	37 28	>99.9	215	61	68	0.13	4	309	98	D	1
	28	1976	1	27	11	46	48.050	18.587	-66.480	93.3	2.70	1.9	275 9	8.1	176 42	6.6	15	46	68	0.15	10	218	63	D	1
	29	1976	1	29	23	24	50.160	18.158	-67.442	37.0	2.40	4.6	164 13	37.0	261 30	5.9	53	56	68	0.12	7	296	45	D	1
	30	1976	1	31	22	52	57.780	18.219	-66.915	39.0	1.00	7.7	184 4	2.6	275 8	13.2	67	81	68	0.12	6	141	30	D	1
	31	1976	2	1	6	6	55.430	18.055	-67.102	25.4	0.70	14.5	140 8	30.9	236 39	9.4	40	49	68	0.11	5	201	44	D	1
	32	1976	2	1	22	8	11.940	18.486	-67.865	64.5	2.40	9.0	187 16	24.8	292 41	12.7	80	44	68	0.18	9	333	98	D	1
	33	1976	2	1	22	58	10.370	18.007	-66.879	3.2	1.30	2.0	269 0	6.2	359 0	14.7	90	90	68	0.16	6	182	29	D	1
	34	1976	2	2	1	20	27.640	18.159	-66.946	28.3	...	10.2	86 20	26.7	344 29	46.6	205	53	68	0.30	5	163	30	D	1
	35	1976	2	5	8	7	36.470	18.048	-67.129	14.6	1.30	0.7	350 3	3.4	258 27	0.4	86	62	68	0.03	6	241	47	D	1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)						North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.				Hypo						
Name	Index	yr	mo	d	h	min	s				a (km)	Tr	Pl	b (km)	Tr	Pl	c (km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*
PRN76	36	1976	2	5	20	5	4.230	18.359	-66.475	1.1	1.20	4.2	264	0	14.6	354	2	>99.9	173	88	68	0.12	5	210	40	D	1
	37	1976	2	6	10	42	5.120	18.441	-66.473	19.5	1.10	8.8	61	10	22.5	325	30	66.8	168	58	68	0.15	5	269	48	D	1
	38	1976	2	7	6	48	5.450	18.174	-67.024	18.7	2.60	1.6	346	1	1.4	76	22	6.6	254	67	68	0.14	10	91	29	C	1
	39	1976	2	8	17	38	19.070	18.371	-66.390	35.5	1.30	6.5	82	6	32.5	350	18	16.8	189	70	68	0.28	6	245	46	D	1
	40	1976	2	8	20	29	470	17.964	-65.497	0.2	2.10	11.0	108	16	20.1	210	34	37.8	358	51	68	0.18	5	337	..	D	1
	41	1976	2	9	22	16	24.160	18.085	-66.891	7.5	1.60	4.5	357	0	1.8	87	7	6.3	267	83	68	0.32	10	150	23	C	1
	42	1976	2	11	17	45	26.270	17.736	-66.746	14.6	1.30	5.1	104	31	11.7	352	32	3.0	227	42	68	0.24	7	264	51	D	1
	43	1976	2	13	2	49	33.700	18.883	-66.505	19.6	2.50	10.4	87	4	>99.9	178	20	>99.9	347	69	68	0.01	5	300	79	D	1
	44	1976	2	13	19	44	35.830	18.370	-66.467	10.5	0.90	4.8	252	6	77.0	157	38	6.8	349	51	68	0.11	5	213	41	D	1
	45	1976	2	15	21	18	14.210	17.821	-66.957	15.4	1.10	20.8	211	11	7.8	308	30	4.8	103	57	68	0.05	5	278	42	D	1
	46	1976	2	17	2	57	10.950	18.223	-67.412	13.7	1.20	12.8	84	2	3.1	174	4	2.8	328	85	68	0.10	6	291	42	D	1
	47	1976	2	19	13	47	48.290	18.119	-66.908	31.8	1.40	5.9	75	1	62.0	167	44	26.5	344	45	68	0.04	5	202	34	D	1
	48	1976	2	20	00	12	55.030	18.139	-67.354	31.2	2.00	6.1	9	27	45.8	265	32	7.1	131	45	68	0.17	7	282	40	D	1
	49	1976	2	20	9	34	45.870	18.328	-66.026	21.1	2.20	0.4	122	6	3.6	30	17	0.6	230	71	68	0.02	6	258	62	D	1
	50	1976	2	22	20	38	5.830	18.979	-65.863	45.3	2.30	6.7	304	17	24.3	39	18	61.5	173	64	68	0.29	8	289	..	D	1
	51	1976	2	23	20	13	3.410E	18.323	-66.149	0.8	1.30	1.2	101	1	2.5	11	11	9.0	196	78	68	0.21	7	201	38	D	1
	52	1976	2	24	3	48	42.810	17.766	-66.679	6.4	1.20	1.1	230	4	3.0	139	7	26.3	349	81	68	0.09	7	258	51	D	1
	53	1976	2	24	4	32	44.350	17.769	-66.685	0.4	1.00	1.2	262	0	2.7	172	1	>99.9	351	88	68	0.11	8	232	50	D	1
	54	1976	2	28	21	12	15.250	18.000	-65.504	5.0	2.00	5.4	87	32	6.1	199	32	10.2	323	41	68	0.28	9	314	70	D	1
	55	1976	2	29	2	23	25.920	17.769	-66.793	1.6	1.30	6.0	231	2	9.1	141	2	>99.9	6	87	68	0.14	5	253	89	D	1
	56	1976	2	29	5	7	26.720	18.562	-66.142	67.9	1.60	10.5	283	13	73.5	24	41	62.2	179	46	68	0.04	5	271	63	D	1
	57	1976	3	5	1	12	48.850	17.822	-66.797	2.8	1.80	0.9	95	1	3.2	186	2	40.7	339	87	68	0.11	9	228	45	D	1
	58	1976	3	5	15	1	47.140	18.139	-66.006	15.1	2.40	3.1	1	14	2.1	264	28	4.2	115	58	68	0.27	9	120	23	C	1
	59	1976	3	6	4	55	34.850	18.142	-67.023	20.0	2.50	3.6	7	19	2.6	106	26	9.8	245	57	68	0.25	9	101	32	C	1
	60	1976	3	6	17	10	21.220	18.679	-66.844	15.9	2.00	1.2	279	0	3.4	9	0	>99.9	90	90	68	0.06	7	290	71	D	1
	61	1976	3	6	22	51	34.350	18.699	-66.802	64.1	2.00	0.8	83	7	1.9	347	42	4.9	180	47	68	0.05	9	276	72	C	1
	62	1976	3	7	23	11	39.950	18.666	-67.681	5.7	3.20	7.9	158	19	1.2	59	25	3.3	281	57	68	0.14	10	268	83	D	1
	63	1976	3	8	1	3	39.260	18.114	-66.019	23.7	0.50	0.9	307	0	3.2	217	43	2.1	37	47	68	0.04	6	164	24	C	1
	64	1976	3	8	2	32	12.520	18.197	-67.518	62.2	3.20	8.8	174	6	3.4	82	19	13.5	280	70	68	0.19	9	169	50	C	1
	65	1976	3	8	7	5	21.090	18.090	-67.036	10.6	2.00	2.0	1	13	1.6	97	27	4.5	248	59	68	0.22	11	120	37	C	1
	66	1976	3	8	12	5	45.050	18.429	-67.554	7.9	1.70	20.7	104	14	8.3	1	43	7.9	207	43	68	0.18	6	318	68	D	1
	67	1976	3	8	13	8	25.720	18.080	-66.217	20.3	1.00	4.1	276	13	17.7	13	28	9.7	163	58	68	0.23	6	169	32	D	1
	68	1976	3	9	22	10	14.690	17.569	-66.507	7.5	1.60	5.6	353	13	1.7	259	16	3.5	121	69	68	0.13	8	276	71	D	1
	69	1976	3	10	19	20	19.090	19.099	-65.424	10.0	2.80	4.4	166	11	2.8	265	38	24.3	62	49	68	0.19	10	317	..	D	1
	70	1976	3	10	23	16	34.090E	18.145	-65.695	0.1	2.50	5.1	357	5	62.2	266	11	8.7	112	77	68	0.21	7	315	95	D	1
	71	1976	3	12	9	52	0.700	18.101	-66.901	24.7	0.80	1.2	289	4	2.6	20	19	3.9	188	70	68	0.07	6	141	23	C	1
	72	1976	3	12	23	29	8.980	18.172	-67.340	5.2	2.60	14.5	78	4	3.3	168	7	5.4	319	81	68	0.23	9	277	37	D	1
	73	1976	3	13	00	20	25.780	18.019	-67.046	11.9	2.50	1.8	337	7	1.3	71	34	5.0	237	55	68	0.14	10	166	39	C	1
	74	1976	3	13	00	59	5.910	17.967	-67.095	18.3	1.10	1.0	105	23	2.7	212	36	1.5	350	45	68	0.07	7	281	45	D	1
	75	1976	3	13	5	47	5.780	19.748	-66.764	25.8	2.50	45.3	263	0	>99.9	353	0	>99.9	90	90	68	0.30	5	324	..	D	1
	76	1976	3	13	8	14	13.900	17.975	-67.095	17.5	1.00	0.8	100	22	3.2	205	33	1.4	343	48	68	0.06	7	280	45	D	1
	77	1976	3	13	8	52	5.740	17.963	-67.109	18.5	0.50	20.4	245	24	9.5	354	36	7.3	129	44	68	0.05	5	289	46	D	1

Table 5.—Catalog of 1976 earthquakes located by the HYPOELLIPSE program—Continued

Catalog	Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s) ob Cap PM Q auth *	Hypo			
		yr	mo	d h min s				a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl			%		
PRN76	78	1976	3	14	10 16 31.110	18.688	-65.564	1.7	2.50	>99.9	221 22	17.4	325 31	27.5	101 50	68 0.08	5 317 89 D	1
	79	1976	3	14	22 43 52.260	17.955	-66.795	4.6	1.30	1.1	82 1	3.1	173 31	6.7	351 58	68 0.19	11 196 32 D	1
	80	1976	3	16	19 36 4.650	18.513	-67.401	15.8	1.40	2.0	245 0	4.0	335 0	>99.9	90 89	68 0.11	7 311 65 D	1
	81	1976	3	17	5 49 38.030	17.816	-66.809	0.2	1.20	3.6	274 0	7.2	4 0	>99.9	90 90	68 0.28	7 230 50 D	1
	82	1976	3	17	6 54 59.180	17.839	-66.794	1.4	1.70	1.3	267 0	3.7	177 1	75.4	356 88	68 0.14	9 224 43 D	1
	83	1976	3	17	7 53 31.080	18.098	-66.582	20.9	0.60	11.7	333 23	5.8	83 38	3.7	220 42	68 0.16	6 183 50 D	1
	84	1976	3	17	8 15 4.490	18.270	-67.366	73.4	1.40	12.5	197 14	9.9	293 24	6.9	79 61	68 0.28	9 284 41 D	1
	85	1976	3	18	19 3 17.740	18.224	-66.996	25.3	1.10	1.6	4 5	1.2	95 15	4.5	257 74	68 0.06	6 127 26 B	1
	86	1976	3	21	22 59 48.150	19.118	-66.821	5.5	2.90	30.5	169 7	2.1	75 34	4.1	269 55	68 0.09	7 300 .. D	1
	87	1976	3	22	14 9 28.830	18.688	-66.611	7.8	2.20	0.7	92 2	2.6	183 36	1.8	0 53	68 0.11	10 252 65 D	1
	88	1976	3	25	16 38 12.860	18.592	-66.629	85.0	2.10	2.2	285 8	9.0	189 37	3.3	26 51	68 0.16	10 234 59 D	1
	89	1976	3	25	19 1 17.870	18.312	-66.840	1.7	1.40	4.4	261 0	9.1	171 1	>99.9	350 88	68 0.10	5 156 30 D	1
	90	1976	3	25	22 6 4.870	19.159	-65.747	6.5	2.50	8.5	120 4	3.1	212 31	54.7	23 58	68 0.17	8 324 .. D	1
	91	1976	3	25	22 30 33.490	18.982	-65.874	2.7	2.70	19.3	207 6	2.4	301 35	6.1	108 54	68 0.13	9 296 .. D	1
	92	1976	3	26	13 37 26.390	18.489	-65.797	104.7	2.20	10.6	43 6	31.8	137 35	4.7	305 54	68 0.12	6 291 51 D	1
	93	1976	3	28	13 3 4.030	18.329	-66.509	30.7	0.80	60.3	161 6	11.0	70 11	29.6	279 77	68 0.04	5 245 38 D	1
	94	1976	3	28	20 32 49.360	17.970	-66.766	16.2	1.10	0.6	254 13	3.5	160 18	1.7	19 67	68 0.05	7 235 35 D	1
	95	1976	3	29	5 22 0.230	18.876	-67.557	20.0	3.30	3.3	72 16	31.7	167 19	9.6	305 64	68 0.17	7 279 92 D	1
	96	1976	3	29	5 25 21.250	18.526	-67.248	12.9	1.70	>99.9	304 0	31.5	213 8	10.1	34 81	68 0.16	5 315 79 D	1
97	1976	3	29	5 33 56.600	18.875	-67.635	4.5	1.90	37.9	43 3	9.2	310 43	22.1	137 46	68 0.01	5 335 .. D	1	
98	1976	3	29	6 15 50.840	18.461	-65.557	56.3	3.60	3.8	308 33	7.8	192 35	27.8	69 38	68 0.16	10 309 66 D	1	
99	1976	3	29	9 12 5.860	18.721	-67.381	15.3	2.10	6.7	250 0	17.5	340 0	>99.9	90 89	68 0.17	6 255 86 D	1	
100	1976	3	29	20 15 20.010E	18.336	-66.132		1.30	3.2	320 0	12.4	230 0	>99.9	90 89	68 0.30	7 269 52 D	1 *	
101	1976	3	30	8 22 2.980	17.951	-67.101	17.4	0.80	3.5	230 24	1.8	336 32	1.5	110 48	68 0.10	8 284 46 D	1	
102	1976	3	31	2 19 58.890	18.678	-65.835	17.2	2.20	3.8	264 2	6.4	354 10	27.9	162 79	68 0.30	11 286 71 D	1	
103	1976	3	31	2 38 47.550	17.807	-66.783	9.1	1.50	2.2	90 11	3.9	188 34	11.1	345 53	68 0.22	8 241 46 D	1	
104	1976	3	31	13 39 35.380	18.923	-65.375	31.5	2.50	16.7	47 2	25.8	317 6	>99.9	156 83	68 0.25	6 335 .. D	1	
105	1976	3	31	16 13 20.050	18.399	-66.429	6.9	1.00	2.0	274 5	3.5	5 7	23.1	148 81	68 0.15	6 201 46 D	1	
106	1976	4	1	22 30 33.080	18.835	-67.026	51.6	1.60	3.6	319 9	2.7	55 32	8.4	216 56	68 0.19	12 292 73 D	1	
107	1976	4	2	7 2 40.170	18.656	-67.508	9.9	1.70	35.0	202 12	20.8	105 31	8.1	310 56	68 0.31	6 326 .. D	1	
108	1976	4	2	22 12 39.160	20.222	-68.699	21.8	3.10	>99.9	232 0	>99.9	322 0	>99.9	90 89	68 0.01	3 355 .. D	1	
109	1976	4	2	22 31 22.370E	18.407	-65.892	0.3	0.90	9.2	14 0	1.8	284 1	>99.9	104 89	68 0.13	6 244 43 D	1 *	
110	1976	4	3	4 40 45.080	18.854	-67.304	24.6	3.10	5.6	121 5	3.9	215 40	2.4	25 49	68 0.14	11 311 75 D	1	
111	1976	4	3	4 57 4.740	18.379	-67.103	16.0	1.60	14.3	214 10	11.4	117 36	>99.9	317 52	68 0.07	5 172 41 D	1	
112	1976	4	3	5 55 30.170	18.670	-66.822	19.8	1.40	2.5	86 4	6.1	355 10	9.1	197 79	68 0.24	11 253 60 D	1	
113	1976	4	3	13 27 34.850	18.174	-66.859	33.1	1.40	4.5	355 7	2.8	86 8	10.1	225 79	68 0.28	10 108 28 C	1	
114	1976	4	3	14 26 26.240	17.863	-66.803	13.9	1.40	5.6	257 5	28.3	165 23	37.0	358 66	68 0.08	5 265 41 D	1	
115	1976	4	5	6 48 53.880	18.281	-67.071	23.2	...	>99.9	269 3	8.9	0 16	10.9	168 73	68 0.05	5 199 30 D	1	
116	1976	4	6	17 34 14.510	18.050	-66.957	25.2	0.90	1.6	98 4	4.2	7 15	6.6	202 74	68 0.12	7 163 29 C	1	
117	1976	4	6	19 40 47.530E	18.340	-66.140	0.4	1.10	1.6	292 0	2.2	22 3	36.3	202 87	68 0.27	8 206 37 D	1 *	
118	1976	4	6	20 21 57.590E	18.324	-66.151	0.1	1.00	1.8	277 0	2.4	7 2	82.3	187 88	68 0.14	6 251 40 D	1 *	
119	1976	4	7	2 12 26.440	18.189	-66.747	11.5	0.60	1.2	259 12	1.9	358 37	3.4	154 50	68 0.09	7 172 36 C	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)				North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes				Rms No.		Hypo
Name	Index	yr	mo	d	h min s				a(km)	Tr Pl b(km)	Tr Pl c(km)	Tr Pl %	(s)	ob Gap DM 0 auth *	
PRN76	120	1976	4	7	10 44	0.390	18.341	-65.834	11.0	2.30	9.3 33 14	9.7 133 35	3.6 285 51 68 0.34	8 222 34 D	1
	121	1976	4	7	13 22	50.780	18.415	-66.405	1.4	1.20	6.5 286 0	13.1 16 1	>99.9 196 88 68 0.09	5 208 49 D	1
	122	1976	4	7	16 1	49.730	18.312	-66.861	5.1	0.90	1.9 179 4	1.3 89 6	4.8 302 82 68 0.15	8 106 29 C	1
	123	1976	4	7	22 50	2.150	18.246	-67.420	8.1	1.50	8.4 176 1	35.0 86 14	19.5 270 75 68 0.01	5 293 44 D	1
	124	1976	4	8	2 30	46.170	18.651	-65.652	18.8	2.10	25.9 222 16	3.9 321 29	9.4 106 56 68 0.21	10 301 73 D	1
	125	1976	4	8	10 56	57.570	18.734	-67.173	17.5	2.70	2.5 75 2	6.2 345 11	17.7 176 78 68 0.15	9 250 81 D	1
	126	1976	4	8	20 3	16.740	18.255	-66.253	58.4	1.40	6.7 277 3	22.0 185 29	42.7 13 60 68 0.06	5 174 43 D	1
	127	1976	4	9	8 16	15.670	18.600	-66.212	81.1	1.60	16.5 274 16	76.9 169 41	>99.9 21 44 68 0.15	5 270 78 D	1
	128	1976	4	9	21 51	17.180	18.490	-66.819	18.5	2.50	1.1 266 13	1.7 165 39	5.6 11 48 68 0.11	10 212 42 D	1
	129	1976	4	10 12	41 52.440		18.691	-65.500	16.4	1.90	>99.9 226 13	13.8 320 17	29.5 100 68 68 0.18	6 328 84 D	1
	130	1976	4	11 6	49 53.680		18.751	-67.323	9.2	1.40	12.7 214 17	9.9 116 26	4.1 333 58 68 0.15	6 326 86 D	1
	131	1976	4	11 20	2 43.960		17.905	-67.333	18.3	2.20	>99.9 57 3	23.2 325 36	16.4 152 53 68 0.01	5 325 71 D	1
	132	1976	4	11 20	29 10.440		18.459	-66.394	95.1	1.90	3.6 104 7	8.9 196 16	6.9 352 72 68 0.23	11 223 46 D	1
	133	1976	4	11 23	10 22.660		18.709	-66.780	63.4	1.90	2.0 91 6	4.3 355 45	8.6 186 44 68 0.20	14 258 67 D	1
	134	1976	4	13 13	35 21.090E		17.948	-66.152	0.6	2.30	7.0 232 0	62.2 322 0	>99.9 90 89 68 0.16	4 283 58 D	1 *
	135	1976	4	13 13	36 2.890		17.797	-65.930	21.9	2.50	77.8 163 11	13.9 256 16	43.7 39 70 68 0.06	5 286 59 D	1
	136	1976	4	13 21	56 3.410		18.216	-67.056	33.1	0.80	3.4 10 22	2.3 111 25	9.7 244 55 68 0.09	6 129 23 C	1
	137	1976	4	13 23	10 9.460		17.984	-66.835	18.1	0.50	2.0 260 7	10.3 165 39	5.5 358 50 68 0.09	6 213 33 C	1
	138	1976	4	14 7	57 55.380		19.410	-65.026	23.5	3.00	6.9 315 0	95.8 45 0	>99.9 90 90 68 0.17	9 328 ** D	1
	139	1976	4	14 14	11 13.910		18.028	-67.088	40.3	2.60	4.2 100 14	4.8 3 25	19.4 216 60 68 0.12	6 97 43 C	1
	140	1976	4	16 17	7 6.800		17.966	-66.989	14.4	0.40	25.4 199 15	4.1 97 38	10.7 306 48 68 0.02	5 221 34 D	1
	141	1976	4	16 19	9 44.480		18.150	-67.202	97.2	2.20	1.5 79 19	4.5 338 29	2.6 197 54 68 0.06	9 273 56 D	1
	142	1976	4	17 14	41 23.360		17.990	-67.114	14.2	1.40	6.4 324 15	10.4 229 20	2.5 89 64 68 0.15	6 287 46 D	1
	143	1976	4	17 16	43 0.350		18.536	-65.573	36.8	1.20	13.2 253 18	25.0 148 38	12.8 3 46 68 0.35	7 337 67 D	1
	144	1976	4	18 1	11 35.500		17.994	-68.031	70.0	2.60	12.9 347 16	38.5 242 42	4.6 93 43 68 0.15	9 333 ** D	1
	145	1976	4	18 14	44 43.880		17.888	-67.148	11.5	1.10	28.0 247 1	14.9 338 18	10.6 153 71 68 ***	5 310 67 D	1
	146	1976	4	18 23	51 22.590		18.292	-65.042	98.4	2.10	8.1 194 24	88.1 83 39	5.6 307 41 68 0.04	6 341 ** D	1
	147	1976	4	19 3	14 38.770		18.690	-65.522	4.8	2.40	24.5 232 14	5.0 133 32	2.4 342 54 68 0.12	8 311 92 D	1
	148	1976	4	20 7	56 56.600		18.132	-66.090	25.3	1.60	1.9 127 3	3.1 36 21	4.9 224 68 68 0.14	8 131 21 C	1
	149	1976	4	20 14	1 26.620		17.911	-66.860	25.4	2.00	3.7 1 13	1.1 95 16	2.6 234 69 68 0.10	8 212 38 D	1
	150	1976	4	21 3	8 46.780		19.363	-68.444	90.8	3.40	5.6 54 7	>99.9 320 33	31.6 155 56 68 0.07	6 320 ** D	1
	151	1976	4	21 18	50 57.510		17.891	-67.178	13.0	1.70	20.1 98 1	22.9 8 16	6.8 191 73 68 0.11	5 296 59 D	1
	152	1976	4	21 20	57 31.830		18.655	-65.425	12.6	2.40	>99.9 234 12	27.7 141 15	18.8 2 70 68 0.06	5 329 87 D	1
	153	1976	4	25 17	1 27.820		17.962	-67.030	1.2	2.40	3.1 8 2	1.3 99 6	10.0 260 83 68 0.14	9 223 51 D	1
	154	1976	4	26 17	15 19.930		18.296	-66.117	64.8	1.90	3.2 355 0	0.2 265 16	1.8 85 74 68 0.11	11 184 34 D	1
	155	1976	4	27 1	6 20.190		18.938	-67.345	7.2	2.20	6.6 124 22	12.4 224 23	4.7 356 57 68 0.22	7 321 ** D	1
	156	1976	4	28 23	52 59.980		18.180	-67.207	6.5	1.10	3.3 356 4	9.3 265 17	5.8 99 72 68 0.16	6 234 28 D	1
	157	1976	4	29 4	34 35.540		18.330	-67.302	18.7	2.40	13.0 18 7	50.4 285 22	19.0 125 66 68 0.29	6 276 42 D	1
	158	1976	4	29 16	44 29.070		18.043	-67.856	50.3	2.10	10.5 351 6	1.8 86 36	26.3 253 53 68 0.11	8 278 83 D	1
	159	1976	4	30 14	8 21.480		18.682	-66.417	73.3	1.90	0.8 277 7	1.8 12 39	4.5 178 50 68 0.09	12 233 78 C	1
	160	1976	5	1	3 15 17.900		18.184	-67.127	18.6	1.70	2.9 5 19	3.6 108 33	5.2 251 50 68 0.32	10 195 26 D	1
	161	1976	5	1	8 38 8.390		17.973	-66.889	8.6	1.10	8.7 22 8	10.7 115 21	>99.9 273 67 68 ***	5 306 55 D	1
	162	1976	5	5	18 22 54.160		18.368	-66.829	27.5	1.10	5.8 111 6	8.6 204 19	29.0 4 69 68 0.22	5 176 34 D	1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	M	Error ellipsoid axes						Rms No.		Hypo							
		yr	mo	d h min s					a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	% (s)	ob Gap DM Q		auth *						
PRN76	163	1976	5	6 15 17 2.720	18.231	-66.952	21.1	1.40	0.7	83	6	1.0	352	9	5.0	206	79	68	0.06	7	138	34	C	1
	164	1976	5	6 17 26 59.850	18.356	-66.234	95.7	1.90	9.0	196	6	2.4	288	22	4.8	91	67	68	0.18	10	210	49	D	1
	165	1976	5	7 5 37 55.820	18.110	-65.692	23.0	3.50	1.9	206	4	9.4	114	22	2.2	305	67	68	0.10	8	277	48	D	1
	166	1976	5	7 18 28 20.330E	18.318	-66.863	1.0	1.10	1.4	275	0	3.0	5	>99.9	90	90	68	0.17	7	159	33	C	1	
	167	1976	5	8 3 48 2.940	18.416	-67.098	22.1	2.10	13.9	205	16	39.5	307	37	6.5	95	48	68	0.14	5	174	45	D	1
	168	1976	5	8 8 53 10.600	17.873	-67.072	1.3	2.30	5.5	35	6	0.9	127	16	3.5	286	72	68	0.07	8	271	61	D	1
	169	1976	5	8 10 57 4.070	18.572	-66.864	19.7	2.90	1.2	86	5	4.0	179	24	7.1	346	65	68	0.12	9	236	50	D	1
	170	1976	5	8 14 6 47.550	18.226	-67.211	13.6	2.10	42.4	264	12	12.7	170	20	9.8	24	66	68	0.08	5	235	27	D	1
	171	1976	5	9 15 4 20.020	17.767	-66.735	15.9	1.00	10.1	257	0	30.3	347	0	>99.9	90	90	68	0.03	5	287	59	D	1
	172	1976	5	10 1 56 32.910	17.967	-68.149	152.7	2.50	74.8	136	27	>99.9	24	35	>99.9	253	42	68	0.07	5	337	..	D	1
	173	1976	5	10 17 23 56.630	18.434	-67.047	86.7	1.60	10.7	200	10	4.1	105	30	9.1	306	58	68	0.20	9	189	47	D	1
	174	1976	5	12 2 51 31.410	18.381	-65.856	18.2	2.10	64.0	236	0	12.9	326	6	42.7	145	84	68	0.13	5	274	43	D	1
	175	1976	5	12 20 56 32.100E	18.167	-66.934	0.4	0.70	5.6	155	6	3.8	64	7	18.6	285	80	68	0.22	5	126	36	D	1
	176	1976	5	13 1 51 0.580	18.649	-65.759	4.3	2.60	12.1	320	30	>99.9	211	30	24.3	86	45	68	0.04	5	295	72	D	1
	177	1976	5	13 9 52 7.750	18.732	-65.530	38.9	3.10	8.5	320	17	54.7	56	18	38.5	190	64	68	0.23	7	310	87	D	1
	178	1976	5	13 19 57 16.700E	18.446	-67.121	0.2	1.30	2.3	52	1	6.8	321	6	47.0	152	83	68	0.31	7	284	49	D	1
	179	1976	5	14 16 39 50.330	18.081	-67.326	20.1	1.50	11.4	28	0	8.1	118	23	16.5	298	67	68	0.16	6	319	68	D	1
	180	1976	5	15 2 33 15.390	18.209	-66.118	78.5	1.60	8.9	179	10	3.8	83	31	2.6	284	57	68	0.21	12	96	29	C	1
	181	1976	5	15 2 35 17.670	18.659	-66.024	64.9	2.70	4.9	32	13	2.2	296	23	9.0	150	63	68	0.15	11	250	62	D	1
	182	1976	5	15 6 26 39.600	18.292	-66.247	23.2	0.70	14.0	159	12	6.1	257	34	28.3	52	53	68	0.02	5	211	53	D	1
	183	1976	5	15 7 5 0.470	18.528	-65.772	23.6	2.60	22.4	213	15	6.4	317	41	15.7	107	45	68	0.25	7	279	56	D	1
	184	1976	5	15 10 47 27.020	18.048	-67.069	11.5	1.10	6.0	122	18	5.1	21	32	21.2	236	52	68	0.09	5	147	41	D	1
	185	1976	5	15 17 36 23.840	18.892	-65.325	26.7	2.80	13.9	320	0	>99.9	230	0	>99.9	270	89	68	0.30	7	319	..	D	1
	186	1976	5	15 22 1 24.750	19.025	-65.197	7.5	3.80	8.9	329	12	13.1	233	30	38.8	79	57	68	0.27	11	323	..	D	1
	187	1976	5	16 4 30 57.560	18.310	-65.884	23.2	2.60	11.3	188	10	6.2	285	37	16.6	85	51	68	0.39	7	168	30	D	1
	188	1976	5	16 4 54 14.140	18.276	-66.245	20.8	0.70	13.5	156	24	6.6	258	25	32.7	28	54	68	0.04	5	199	44	D	1
	189	1976	5	16 10 36 37.920	19.128	-66.810	30.9	2.40	5.8	77	2	36.9	347	12	65.4	177	77	68	0.17	7	300	..	D	1
	190	1976	5	17 3 16 14.010	18.818	-65.448	2.5	3.40	27.9	224	19	4.9	122	33	2.1	339	50	68	0.12	9	314	..	D	1
	191	1976	5	17 37 8.690	18.057	-66.264	8.2	2.70	1.5	258	16	4.2	353	16	4.6	125	67	68	0.20	9	173	37	C	1
	192	1976	5	17 21 30 46.250	18.169	-67.478	8.5	2.70	2.9	77	22	4.6	332	33	4.1	194	48	68	0.24	9	157	45	D	1
	193	1976	5	17 22 17 42.360	18.211	-66.552	23.2	1.10	35.0	328	17	4.0	65	19	9.7	200	63	68	0.18	5	212	43	D	1
	194	1976	5	17 22 53 20.780	18.224	-66.570	73.5	1.40	11.0	3	6	3.4	94	10	4.8	243	78	68	0.18	8	176	44	D	1
	195	1976	5	18 6 16 14.620	18.289	-66.393	32.0	1.00	2.6	76	1	12.1	346	13	8.1	171	76	68	0.20	7	211	32	D	1
	196	1976	5	19 4 7 20.750	18.168	-67.539	126.7	2.10	7.3	184	4	3.7	92	23	16.1	283	66	68	0.10	8	164	51	D	1
	197	1976	5	21 22 59 5.840	18.026	-66.788	16.7	0.80	4.3	258	9	13.8	355	40	34.1	157	48	68	0.02	5	194	32	D	1
	198	1976	5	22 7 11 3.580	18.624	-66.524	11.3	1.80	3.9	178	24	1.1	280	25	2.5	50	54	68	0.14	10	244	65	D	1
	199	1976	5	23 8 10 31.940	18.769	-65.327	0.2	2.80	49.0	236	17	8.7	138	22	3.8	1	61	68	0.20	8	319	..	D	1
	200	1976	5	24 5 7 22.020	18.158	-67.128	10.5	2.00	2.2	158	25	4.9	262	28	2.5	32	50	68	0.21	10	198	29	D	1
	201	1976	5	24 20 7 1.520	18.151	-66.068	20.9	1.20	3.4	299	4	7.2	208	15	10.0	44	74	68	0.23	7	159	20	D	1
	202	1976	5	25 7 43 47.970	19.112	-66.825	68.6	2.80	5.2	84	4	34.7	351	30	13.9	180	59	68	0.18	9	300	..	D	1
	203	1976	5	25 10 14 26.080	18.138	-67.667	24.7	2.10	8.5	341	21	2.6	81	25	7.0	216	56	68	0.20	8	168	63	D	1
	204	1976	5	25 12 57 34.370	18.089	-66.833	13.2	0.80	4.2	259	4	12.1	350	19	50.7	157	70	68	0.03	5	149	29	D	1
	205	1976	5	25 21 37 48.680	17.834	-66.811	9.9	1.10	1.0	164	8	0.2	256	14	0.5	45	73	68	0.01	6	271	44	C	1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)						North latitude (deg)	East longitude (deg)	Focal depth (km)	M	Error ellipsoid axes						Rms No.		Hypo								
	yr	mo	d	h	min	s					a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	ob		Gap	DM	Q	auth				
PRN76	206	1976	5	26	5	4	11.150	18.438	25.9	2.40	9.9	193	13	15.4	96	28	2.8	305	58	68	0.25	10	293	49	D	1	
	207	1976	5	26	5	20	51.140	17.852	10.7	1.10	0.3	91	16	2.3	349	36	0.6	200	49	68	0.02	6	233	43	C	1	
	208	1976	5	27	7	12	20.080	18.569	6.2	1.40	20.1	24	12	>99.9	117	14	9.9	255	71	68	0.09	5	322	87	D	1	
	209	1976	5	28	4	28	11.180	17.332	17.5	1.80	3.7	133	28	10.9	248	38	14.7	17	39	68	0.17	8	307	..	D	1	
	210	1976	5	28	14	51	35.640	18.397	66.396	10.0	1.10	4.9	274	21	7.5	21	38	60.7	161	44	68	0.19	5	203	48	D	1
	211	1976	5	28	15	56	59.500	18.345	66.851	24.4	0.90	2.8	98	3	7.0	188	4	17.8	332	85	68	0.13	6	183	33	D	1
	212	1976	5	28	18	48	26.460	17.981	67.086	3.0	1.50	11.8	220	24	1.9	118	26	3.9	346	53	68	0.16	8	266	43	D	1
	213	1976	5	28	20	55	57.990	18.176	66.127	20.7	1.00	0.5	303	5	0.7	210	33	2.0	41	56	68	0.04	7	138	27	B	1
	214	1976	5	29	3	7	54.520	17.806	66.920	0.4	1.30	0.8	106	6	2.5	201	41	5.8	9	48	68	0.07	8	245	45	D	1
	215	1976	5	29	9	5	22.770	18.038	66.938	21.2	0.70	6.2	96	3	13.3	5	18	46.3	195	71	68	0.08	5	173	27	D	1
	216	1976	5	29	21	53	31.100	18.669	67.001	55.0	1.20	8.4	88	27	27.0	339	33	24.8	208	44	68	0.24	6	272	70	D	1
	217	1976	5	30	11	4	2.450	18.257	67.228	29.5	1.80	3.7	13	22	16.7	264	38	2.9	126	43	68	0.19	10	243	31	D	1
	218	1976	5	30	11	6	25.290	18.268	67.161	23.8	1.60	2.4	5	5	8.8	272	32	2.0	103	57	68	0.16	9	213	30	D	1
	219	1976	5	31	11	58	10.430	18.262	67.143	22.0	1.40	2.7	33	26	7.1	141	33	7.9	273	45	68	0.19	10	203	29	D	1
	220	1976	6	1	1	17	14.160	18.342	67.238	9.3	1.10	3.2	191	2	9.8	281	13	5.4	92	76	68	0.30	10	261	40	D	1
	221	1976	6	1	3	15	5.940	17.806	66.806	0.3	2.80	1.1	90	1	4.6	181	5	14.1	349	84	68	0.14	10	232	47	D	1
	222	1976	6	1	3	56	5.880	17.823	66.817	2.4	1.20	5.3	8	0	1.7	98	1	53.9	278	89	68	0.17	8	229	48	D	1
	223	1976	6	1	11	44	17.650	17.819	66.814	1.7	1.60	1.5	280	0	3.8	190	1	63.8	10	88	68	0.17	10	230	46	D	1
	224	1976	6	1	15	58	36.270	18.293	66.863	5.2	1.40	0.8	57	7	1.2	149	16	2.6	305	72	68	0.12	10	156	32	C	1
	225	1976	6	1	18	5	10.220	17.979	67.121	13.7	1.10	4.9	350	5	14.0	258	21	5.3	93	68	68	0.18	6	282	47	D	1
	226	1976	6	2	13	16	18.050	18.924	64.787	10.4	3.10	17.5	344	0	13.8	254	43	25.8	74	47	68	0.25	10	333	..	D	1
	227	1976	6	3	21	26	19.550	18.910	67.399	58.8	3.40	4.3	62	26	43.7	317	27	10.5	188	50	68	0.16	10	309	88	D	1
	228	1976	6	4	7	28	40.270	18.118	66.144	13.6	1.00	1.6	160	32	2.8	45	34	1.3	281	39	68	0.19	10	114	26	C	1
	229	1976	6	4	16	50	16.490E	18.329	66.141	..	1.40	3.0	305	0	5.4	35	0	>99.9	90	90	68	0.31	6	243	40	D	1
	230	1976	6	4	20	27	39.250	18.127	66.488	15.4	0.70	14.9	194	18	4.0	89	39	63.8	303	45	68	0.13	5	151	36	D	1
	231	1976	6	4	21	19	30.480	18.131	67.062	28.2	0.80	4.7	2	22	3.8	107	32	14.0	244	49	68	0.24	8	141	32	D	1
232	1976	6	5	8	14	29.490	18.972	66.196	41.4	1.80	2.0	289	4	11.9	20	5	16.7	160	83	68	0.11	9	286	95	D	1	
233	1976	6	5	15	2	58.660	18.281	67.284	32.1	1.00	3.4	153	23	11.9	261	37	4.6	38	44	68	0.16	8	264	37	D	1	
234	1976	6	5	18	7	22.100	17.873	66.217	0.3	1.70	1.4	258	2	3.5	168	3	9.9	22	86	68	0.19	10	219	47	D	1	
235	1976	6	6	5	27	47.230	18.121	66.996	23.3	1.00	4.7	181	5	2.4	89	19	7.4	285	70	68	0.18	7	135	34	C	1	
236	1976	6	6	15	7	45.810	18.254	67.608	10.9	2.60	>99.9	93	7	26.2	2	8	18.2	223	79	68	0.11	5	314	61	D	1	
237	1976	6	6	18	9	23.600	18.183	67.205	27.4	0.70	23.3	82	4	8.9	331	7	10.1	201	81	68	0.08	5	233	28	D	1	
238	1976	6	8	17	27	25.020	18.423	65.413	4.6	2.50	>99.9	245	14	43.6	150	19	23.1	10	66	68	0.02	5	332	85	D	1	
239	1976	6	8	20	27	42.720	18.253	67.404	12.2	0.80	11.0	172	8	30.7	79	21	16.3	281	67	68	0.07	5	290	43	D	1	
240	1976	6	9	8	57	0.610	19.020	65.535	8.2	2.40	4.6	306	9	3.0	211	30	23.0	51	58	68	0.18	10	311	..	D	1	
241	1976	6	9	11	15	14.080	18.300	66.004	20.9	2.00	7.6	128	9	>99.9	32	29	18.8	233	59	68	0.23	4	256	64	D	1	
242	1976	6	10	8	7	34.650	18.224	66.068	83.4	1.50	12.6	344	15	4.2	82	26	5.6	228	59	68	0.14	7	194	26	D	1	
243	1976	6	10	20	10	52.440E	18.404	66.407	0.9	1.40	3.7	271	0	10.5	5	11	>99.9	181	88	68	0.10	5	204	48	D	1	
244	1976	6	11	1	58	26.920	18.152	66.514	12.6	2.40	>99.9	100	9	7.3	8	11	6.8	228	75	68	0.34	5	274	61	D	1	
245	1976	6	13	20	10	54.380	19.040	67.851	0.3	3.20	8.9	150	16	2.2	52	26	4.8	268	58	68	0.24	11	295	..	D	1	
246	1976	6	13	20	28	56.910	18.421	67.186	17.1	2.20	20.7	74	30	>99.9	320	36	9.0	192	39	68	0.26	5	284	47	D	1	
247	1976	6	13	21	13	10.150	18.621	67.235	23.0	2.10	33.8	144	12	3.9	46	34	11.0	250	53	68	0.17	7	301	70	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)				North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes				Rms No.		Hypo													
Name	Index	yr	mo	d	h min s				a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	ob Gap	DM	Q	auth	*								
PRN76	248	1976	6	13	21	14	15.500	18.389	-67.114	12.7	...	14.9	17	5	>99.9	284	29	9.5	116	60	68	0.21	5	190	42	D	1	*
	249	1976	6	13	21	58	47.630	18.557	-67.252	56.2	...	34.5	67	19	>99.9	321	39	>99.9	178	44	68	...	4	317	82	D	1	*
	250	1976	6	13	22	10	34.610	18.590	-67.317	26.0	2.10	>99.9	308	6	39.3	216	25	22.2	51	64	68	0.02	4	321	69	D	1	*
	251	1976	6	14	3	22	54.110	19.064	-67.786	19.2	...	23.9	41	2	>99.9	131	12	14.8	302	77	68	0.24	6	329	...	D	1	*
	252	1976	6	14	4	12	21.700	18.174	-67.229	15.8	0.80	8.3	90	10	4.2	189	41	1.9	350	47	68	0.21	7	244	30	D	1	*
	253	1976	6	14	4	36	17.110	18.954	-67.512	0.2	2.40	27.8	138	18	3.9	239	31	1.5	22	53	68	0.07	8	320	...	D	1	*
	254	1976	6	14	4	37	11.170	18.897	-67.818	0.1	3.60	16.5	149	15	2.7	51	30	5.3	262	55	68	0.24	11	285	...	D	1	*
	255	1976	6	14	5	51	14.250	18.782	-67.745	4.5	3.30	13.8	152	16	1.9	53	30	3.8	266	55	68	0.18	11	276	97	D	1	*
	256	1976	6	15	00	27	33.520	18.882	-67.879	16.8	3.60	50.3	134	10	11.1	41	17	14.1	253	70	68	0.37	10	288	...	D	1	*
	257	1976	6	15	00	34	10.710	18.361	-67.704	73.4	3.60	19.1	167	21	11.2	63	32	40.9	284	50	68	0.37	10	237	68	D	1	*
	258	1976	6	16	16	15	51.490	18.024	-66.420	19.7	1.10	1.3	97	10	5.0	190	12	15.9	329	74	68	0.16	7	189	40	D	1	*
	259	1976	6	16	16	35	31.320	18.751	-67.742	18.8	4.20	3.2	58	11	17.9	150	12	8.1	287	73	68	0.24	10	275	...	D	1	*
	260	1976	6	17	12	10	56.630	18.885	-67.850	2.6	3.70	6.4	236	6	23.7	144	17	4.2	344	71	68	0.24	10	286	...	D	1	*
	261	1976	6	19	19	59	3.820	18.463	-67.444	11.2	1.70	4.7	187	11	5.5	280	14	2.4	60	72	68	0.19	9	315	63	D	1	*
	262	1976	6	20	1	5	54.390	17.835	-66.818	14.1	0.60	6.3	252	2	26.5	161	35	67.6	344	54	68	0.07	5	271	45	D	1	*
	263	1976	6	20	17	43	4.530	18.621	-65.112	8.7	2.80	6.1	333	17	3.2	233	30	19.1	89	54	68	0.26	16	329	...	D	1	*
	264	1976	6	22	8	24	4.480	18.689	-66.415	24.4	1.40	1.1	99	12	2.0	3	27	3.3	210	60	68	0.14	10	256	75	C	1	*
	265	1976	6	23	7	48	23.120	18.153	-66.986	21.2	1.00	2.4	1	11	1.5	95	19	6.1	243	67	68	0.19	9	132	32	C	1	*
	266	1976	6	23	23	37	32.450	17.999	-67.172	18.2	0.60	8.1	353	21	17.0	96	29	13.8	233	52	68	0.04	5	301	52	D	1	*
	267	1976	6	25	00	19	16.960	17.958	-66.484	8.7	1.30	0.7	275	0	1.5	185	19	3.1	5	71	68	0.19	18	193	39	C	1	*
	268	1976	6	25	12	9	46.680	18.201	-66.724	128.8	2.00	10.6	7	2	2.4	275	34	3.9	100	55	68	0.23	14	140	38	D	1	*
	269	1976	6	25	14	26	31.060	18.803	-67.445	25.6	2.00	8.3	45	11	10.3	139	16	3.4	283	70	68	0.07	6	331	96	D	1	*
	270	1976	6	25	15	28	39.760	18.071	-67.080	13.5	1.60	8.9	229	7	1.9	134	32	4.1	329	56	68	0.13	6	263	42	D	1	*
	271	1976	6	26	2	3	19.360	18.113	-66.618	21.1	1.00	2.4	328	10	0.9	233	27	1.6	77	60	68	0.06	8	133	50	C	1	*
	272	1976	6	26	5	37	54.010	18.092	-66.921	24.3	1.00	6.4	98	3	16.8	189	10	35.5	352	79	68	0.04	5	160	25	D	1	*
	273	1976	6	27	00	48	4.410	18.283	-67.261	30.5	1.00	12.5	283	20	4.1	182	27	8.0	45	55	68	0.22	7	257	36	D	1	*
	274	1976	6	27	6	45	0.140	18.565	-67.476	17.7	2.40	69.7	120	8	6.4	28	13	10.4	240	74	68	0.17	7	312	74	D	1	*
	275	1976	6	28	5	10	31.190	18.761	-67.133	68.6	2.00	5.9	304	6	4.1	38	38	8.7	207	51	68	0.29	12	300	65	D	1	*
	276	1976	6	28	10	28	47.620	18.060	-67.115	24.7	0.70	7.7	152	27	17.0	263	35	8.0	33	42	68	0.06	5	219	46	D	1	*
	277	1976	6	28	12	33	32.430	19.014	-67.434	23.8	3.50	16.1	142	7	4.0	49	29	6.0	244	60	68	0.17	9	319	...	D	1	*
	278	1976	6	28	22	25	41.040E	18.216	-66.058	0.2	1.00	0.8	349	0	2.6	259	0	>99.9	270	89	68	0.06	6	272	57	D	1	*
	279	1976	6	29	2	21	2.970	18.447	-65.621	25.7	1.40	16.9	84	16	11.3	348	19	33.0	211	64	68	0.04	5	321	...	D	1	*
	280	1976	6	29	5	10	22.240	18.102	-67.721	57.0	2.40	5.4	266	5	6.6	174	22	10.3	9	67	68	0.24	13	323	73	D	1	*
	281	1976	6	29	8	47	38.670	17.783	-66.223	0.1	1.80	1.7	248	3	5.3	157	3	8.9	23	85	68	0.22	10	236	56	D	1	*
	282	1976	6	30	2	6	0.390	18.029	-66.655	15.9	1.70	1.3	90	12	2.6	188	34	2.4	344	53	68	0.20	14	178	46	C	1	*
	283	1976	6	30	3	25	8.610	18.082	-67.045	16.4	1.00	9.6	358	7	5.7	91	22	42.2	252	66	68	0.19	5	128	38	D	1	*
	284	1976	6	30	19	9	27.490	18.441	-66.583	107.4	2.20	7.8	190	4	2.1	99	8	4.7	306	81	68	0.20	15	194	44	D	1	*
	285	1976	6	30	20	15	37.190	18.388	-66.456	10.1	1.10	1.8	334	2	3.2	243	25	3.5	69	64	68	0.14	8	184	34	D	1	*
	286	1976	7	1	6	32	32.680	18.114	-66.861	17.8	0.80	1.2	102	1	4.2	193	31	1.9	10	58	68	0.15	8	136	27	C	1	*
	287	1976	7	2	16	42	19.220	17.782	-66.731	14.0	1.10	19.4	140	6	5.8	236	41	11.3	43	48	68	0.02	5	294	58	D	1	*
	288	1976	7	3	4	44	30.620	17.774	-66.796	6.5	0.90	5.2	275	2	8.0	185	10	>99.9	17	79	68	0.06	5	289	54	D	1	*
	289	1976	7	3	9	38	8.380	18.101	-66.106	20.9	0.90	5.8	142	2	14.9	51	25	21.8	236	64	68	0.02	5	175	21	D	1	*
	290	1976	7	3	15	8	12.460	19.156	-65.375	0.7	3.20	3.6	320	11	16.3	57	34	53.9	215	53	68	0.19	10	319	...	D	1	*

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)						North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s)	ob	Gap	DM	Hypo O auth *						
	yr	mo	d	h	min	s				M	a(km)	Tr Pl	b(km)	Tr Pl	c(km)						Tr Pl	%				
PRN76	291	1976	7	4	18	23	23.420	-67.832	0.7	3.80	40.9	152	20	4.3	49	31	8.8	269	51	68	0.35	10	290	..	D	1
	292	1976	7	5	00	22	40.660	-66.711	4.0	1.20	4.7	229	4	10.9	139	6	>99.9	352	82	68	0.23	5	302	63	D	1
	293	1976	7	5	6	40	53.390	-66.340	100.8	1.60	3.2	73	14	14.8	168	19	3.7	309	66	68	0.22	12	262	51	D	1
	294	1976	7	6	2	18	43.230	-66.075	47.1	2.30	6.3	295	7	60.5	28	19	33.6	186	69	68	0.31	9	288	92	D	1
	295	1976	7	6	2	46	1.950	-66.093	44.3	2.30	5.5	296	8	41.7	30	29	27.7	193	59	68	0.27	9	283	84	D	1
	296	1976	7	6	3	31	46.020	-66.016	19.8	2.70	3.1	298	13	8.2	204	16	4.6	66	69	68	0.18	11	300	..	D	1
	297	1976	7	6	6	54	3.550	-67.126	31.4	1.60	5.4	153	27	6.3	46	30	13.5	276	47	68	0.16	7	328	74	D	1
	298	1976	7	6	16	1	23.400	-66.712	18.4	1.30	2.3	228	13	6.9	133	18	20.0	351	67	68	0.10	6	286	47	D	1
	299	1976	7	6	18	29	7.880	-66.791	19.1	0.90	2.6	243	13	6.2	142	40	15.4	347	47	68	0.11	6	270	42	D	1
	300	1976	7	6	19	55	57.130	-66.862	3.3	0.90	1.0	101	6	2.0	10	10	3.8	221	78	68	0.15	9	110	28	D	1
	301	1976	7	9	16	7	44.130	-66.849	19.1	...	5.8	279	2	22.6	9	8	58.6	175	81	68	0.10	5	251	36	D	1
	302	1976	7	10	4	9	53.250	-67.520	7.4	1.10	14.5	212	6	31.4	303	8	>99.9	85	79	68	0.08	4	314	64	D	1
	303	1976	7	10	18	55	24.400	-66.775	6.7	1.00	2.8	249	4	6.2	158	12	53.5	357	77	68	0.14	6	246	47	D	1
	304	1976	7	10	23	25	38.650	-66.707	15.4	1.20	21.9	144	1	8.9	54	2	7.1	260	87	68	0.05	5	303	60	D	1
	305	1976	7	11	2	51	53.830	-65.547	0.0	1.40	11.9	101	27	37.8	352	33	16.8	221	44	68	0.20	5	336	73	D	1
	306	1976	7	11	11	41	33.000	-67.486	17.0	2.70	4.8	30	14	6.2	295	21	10.1	152	64	68	0.18	10	315	82	D	1
	307	1976	7	12	6	00	48.570	-66.734	12.7	1.30	0.4	345	20	0.2	244	27	0.2	107	55	68	0.01	6	296	59	D	1
	308	1976	7	12	6	15	26.270	-66.748	13.2	1.00	6.5	233	15	26.6	330	25	15.5	114	60	68	0.04	5	292	56	D	1
	309	1976	7	13	20	22	21.620	-66.871	6.9	1.30	1.2	93	3	1.7	183	3	4.5	318	85	68	0.20	12	104	28	C	1
	310	1976	7	14	9	40	45.240	-67.068	12.3	0.30	2.6	15	23	3.1	119	31	8.5	255	49	68	0.14	6	142	41	C	1
	311	1976	7	14	19	4	47.020	-66.850	20.8	...	0.9	269	0	3.6	0	32	7.2	178	57	68	0.05	6	262	40	D	1
	312	1976	7	16	3	30	35.350	-65.312	0.6	3.00	>99.9	256	14	37.4	158	28	9.0	10	58	68	0.32	7	334	..	D	1
	313	1976	7	16	21	5	10.250	-66.764	14.9	1.40	0.7	303	18	0.7	196	42	2.8	51	42	68	0.16	7	129	37	B	1
	314	1976	7	18	8	1	8.910	-67.287	0.1	0.90	8.1	350	0	17.7	260	0	>99.9	270	90	68	0.25	5	271	41	D	1
	315	1976	7	20	22	43	51.130E	-65.798	0.2	2.20	5.7	160	3	12.9	70	7	19.5	273	82	68	0.20	6	326	85	D	1
	316	1976	7	21	4	51	48.200	-67.098	36.7	1.70	3.5	18	16	1.9	114	18	5.8	250	65	68	0.21	13	270	44	D	1
	317	1976	7	21	20	12	57.000E	-66.485	0.8	2.00	1.4	91	1	5.9	181	1	>99.9	316	88	68	0.16	7	157	36	D	1
	318	1976	7	23	17	1	35.810E	-66.063	0.6	0.40	4.6	144	1	6.9	54	1	>99.9	279	88	68	...	5	204	27	D	1
	319	1976	7	23	21	33	20.110	-66.064	2.6	0.80	0.8	274	3	1.9	184	5	14.8	35	84	68	0.06	6	231	37	D	1
	320	1976	7	24	8	29	39.320	-67.162	27.3	0.60	6.0	169	16	13.0	68	35	27.0	279	50	68	0.08	5	212	24	D	1
	321	1976	7	24	13	26	8.030	-65.906	13.3	1.30	20.9	17	22	6.7	118	24	3.9	250	56	68	0.19	6	284	45	D	1
	322	1976	7	27	21	53	53.970	-67.463	11.3	2.00	3.7	291	5	1.8	23	21	1.4	189	68	68	0.09	8	300	48	D	1
	323	1976	7	27	22	53	7.120	-65.979	16.0	3.40	2.3	243	2	9.7	153	8	15.9	346	81	68	0.15	10	281	76	D	1
	324	1976	7	28	1	39	31.150	-67.638	20.4	1.80	2.1	242	11	3.0	149	16	7.2	6	70	68	0.10	9	306	90	D	1
	325	1976	7	29	1	23	40.530	-65.399	0.1	2.10	6.2	237	0	4.9	147	10	2.6	326	80	68	0.09	6	332	..	D	1
	326	1976	7	29	6	26	51.220	-65.380	0.7	2.00	>99.9	227	17	28.4	126	31	17.5	341	53	68	0.08	4	335	..	D	1
	327	1976	8	1	21	48	16.600	-67.747	7.3	3.00	18.4	323	5	2.7	56	30	8.3	225	59	68	0.15	7	277	92	D	1
	328	1976	8	1	22	33	59.340	-67.421	46.2	3.30	20.8	304	15	6.4	4	23	8.7	184	61	68	0.26	9	307	66	D	1
	329	1976	8	2	5	34	...	-66.042	125.1	1.70	14.1	185	4	10.8	93	31	4.8	281	58	68	0.24	9	286	72	D	1
	330	1976	8	5	00	20	3.100	-66.173	70.0	1.30	33.3	36	14	12.6	292	42	15.1	141	44	68	0.27	5	129	58	D	1
	331	1976	8	5	2	32	33.340	-67.096	11.6	0.80	4.8	176	7	7.4	81	36	18.0	275	53	68	0.11	5	182	37	C	1
	332	1976	8	5	2	32	56.920	-67.073	9.0	1.70	1.5	18	15	1.7	117	30	4.5	265	55	68	0.22	12	162	37	C	1
	333	1976	8	5	3	4	28.090	-67.139	17.3	2.10	2.1	348	16	2.5	92	39	7.5	241	46	68	0.21	11	222	39	D	1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.		Hypo										
Name	Index	yr	mo	d	h	min	s			M	a (km)	Tr	Pl	b (km)	Tr	Pl	c (km)	Tr	Pl	%	(s)	ob	Gap	DM	Q	auth	*	
PRN76	334	1976	8	5	7	26	23.990	18.654	-66.121	71.8	1.8D	2.6	299	20	5.6	44	36	9.3	186	47	68	0.18	11	266	68	D	1	
	335	1976	8	5	22	46	51.490	18.069	-67.100	14.7	0.7D	8.4	163	11	40.4	258	26	4.3	52	61	68	0.02	5	197	44	D	1	
	336	1976	8	6	9	15	22.260	18.309	-67.161	15.3	1.1D	7.3	276	16	1.3	175	34	2.1	28	51	68	0.09	6	216	34	D	1	
	337	1976	8	6	16	46	24.040	18.424	-66.295		1.2D	3.0	277	0	10.6	7	0	>99.9	90	90	68	0.14	6	267	42	D	1	
	338	1976	8	8	00	41	38.600	18.068	-67.150	17.3	0.6D	26.9	248	23	5.8	350	25	17.9	121	54	68		5	230	39	D	1	
	339	1976	8	8	11	3	0.310	18.066	-67.173	15.3	1.6D	9.0	241	10	3.1	146	22	1.8	353	65	68	0.26	10	244	40	D	1	
	340	1976	8	8	22	58	16.040	17.627	-65.993	14.4	3.4D	3.3	244	0	14.1	154	1	>99.9	333	88	68	0.18	9	280	75	D	1	
	341	1976	8	8	23	2	13.380	17.994	-66.734	14.5	0.8D	5.5	254	17	21.9	150	38	16.6	4	46	68	0.02	5	262	42	D	1	
	342	1976	8	8	23	21	9.740	18.794	-66.089	50.6	1.7D	3.3	285	6	4.3	18	26	37.7	183	63	68	0.20	9	291	87	D	1	
	343	1976	8	11	21	29	53.570	18.676	-66.887	15.8	1.5D	2.0	280	0	3.0	10	0	>99.9	90	90	68	0.13	8	310	72	D	1	
	344	1976	8	12	7	58	55.510	19.385	-67.242	14.5	3.8D	3.9	60	9	46.4	157	39	18.1	320	49	68	0.15	10	315	..	D	1	
	345	1976	8	12	8	46	17.530	19.288	-67.196	10.5	2.5D	2.7	195	23	4.5	92	26	28.7	320	53	68	0.15	10	312	..	D	1	
	346	1976	8	12	18	50	10.990	18.299	-66.853	3.3	...	1.4	357	13	0.8	91	16	3.9	230	69	68	0.08	7	153	32	C	1	
	347	1976	8	13	20	15	17.770	18.213	-66.177	8.2	1.2D	4.7	178	11	26.1	272	20	19.1	60	66	68	0.07	5	209	34	D	1	
	348	1976	8	13	21	48	39.940	18.526	-65.851	24.0	2.7D	14.2	98	32	20.6	211	32	4.6	335	41	68	0.25	8	309	93	D	1	
	349	1976	8	14	4	22	53.120	17.987	-67.009	13.0	1.1D	3.1	346	11	2.4	82	28	8.2	237	59	68	0.11	6	207	35	D	1	
	350	1976	8	14	13	21	54.560	17.653	-65.976	18.5	1.3D	4.7	135	2	2.2	225	3	4.2	11	86	68	0.18	9	292	73	D	1	
	351	1976	8	15	8	36	6.510	19.075	-66.590	44.5	...	28.0	3	0	2.9	93	3	12.6	273	87	68	0.10	7	295	98	D	1	
	352	1976	8	15	13	8	45.460	18.043	-66.807	13.2	2.3D	0.6	83	19	1.1	191	42	1.6	335	41	68	0.09	10	179	30	C	1	
	353	1976	8	15	15	19	12.110	19.135	-66.510	37.1	2.4D	6.3	295	3	9.4	25	10	37.7	189	79	68	0.28	10	300	..	D	1	
	354	1976	8	16	4	15	49.760	18.568	-66.750	18.3	2.5D	1.3	86	6	2.8	177	11	3.2	328	77	68	0.14	12	230	47	D	1	
	355	1976	8	16	4	58	33.490	18.913	-66.441	70.8	1.9D	7.2	261	2	9.8	353	42	75.6	168	47	68	0.23	6	297	98	D	1	
	356	1976	8	16	11	29	15.270	18.098	-65.750	8.4	1.8D	6.5	117	15	8.4	214	25	4.1	359	60	68	0.24	8	313	48	D	1	
	357	1976	8	16	12	3	17.840	17.832	-67.169	6.5	1.2D	7.2	178	4	22.3	268	7	49.2	58	81	68	0.07	5	309	57	D	1	
	358	1976	8	17	18	15	52.100	17.979	-67.070	16.2	0.7D	5.5	141	7	5.8	45	42	15.5	238	47	68	0.22	6	249	42	D	1	
	359	1976	8	18	00	25	2.730	17.396	-67.780	0.6	0.8D	40.2	50	18	4.4	311	24	3.5	173	59	68	0.05	6	322	<1	D	1	
	360	1976	8	18	19	17	11.420	18.309	-66.926	17.0	1.2D	3.2	176	5	1.8	85	10	16.3	292	78	68	0.15	7	148	38	C	1	
	361	1976	8	21	18	33	16.540	18.569	-66.905	19.6	2.1D	1.7	86	8	4.4	182	39	5.9	347	49	68	0.18	11	239	47	D	1	
	362	1976	8	21	23	21	18.780	18.257	-66.305	19.2	2.1D	2.5	190	5	1.0	280	8	4.5	68	80	68	0.20	14	141	32	C	1	*
	363	1976	8	21	23	51	11.250	18.280	-66.302	20.2	0.9D	1.3	269	2	3.2	359	5	4.6	157	84	68	0.19	10	197	32	D	1	*
	364	1976	8	22	2	16	27.580	18.243	-66.302	19.1	0.8D	5.3	352	0	2.9	262	12	7.6	82	78	68	0.28	9	175	32	D	1	*
	365	1976	8	22	4	57	9.280	18.283	-66.295	64.1	1.4D	9.7	189	3	2.6	280	16	4.9	88	73	68	0.24	11	168	34	D	1	*
	366	1976	8	22	5	55	43.210	19.007	-65.231	16.0	2.7D	46.3	312	0	>99.9	42	0	>99.9	90	90	68	0.12	4	343	..	D	1	
	367	1976	8	22	11	46	40.660	19.019	-65.577	26.5	3.3D	2.5	307	0	20.9	37	0	>99.9	90	90	68	0.08	9	311	..	D	1	
	368	1976	8	22	13	26	8.410	17.460	-67.340	7.9	2.1D	11.9	26	20	5.9	131	35	7.2	273	48	68	0.35	10	255	88	D	1	
	369	1976	8	22	21	17	5.370	18.362	-65.835	16.8	2.4D	49.6	47	27	4.2	295	37	5.4	164	41	68	0.20	7	292	37	D	1	
	370	1976	8	23	16	18	23.840	18.033	-66.188	0.4	0.4D	3.9	280	0	9.8	10	0	>99.9	90	90	68	0.11	5	202	45	D	1	
	371	1976	8	23	21	5	11.410	18.240	-67.047	22.3	0.8D	5.1	157	15	9.6	61	21	28.3	279	63	68	0.02	5	136	26	D	1	
	372	1976	8	24	10	40	11.250	18.224	-66.391	25.7	2.0D	1.7	280	12	4.1	182	32	4.6	28	55	68	0.29	12	128	28	C	1	
	373	1976	8	26	2	1	29.280	18.235	-66.929	15.1	0.8D	8.5	22	3	5.2	112	5	19.7	262	84	68	0.26	6	170	30	D	1	
	374	1976	8	26	9	13	16.250	18.278	-66.253	53.0	1.3D	1.9	285	6	5.2	191	31	4.7	25	58	68	0.22	10	152	41	D	1	
	375	1976	8	27	7	1	8.080	18.091	-66.236	15.5	0.7D	1.1	357	4	2.4	266	12	0.6	106	77	68	0.06	7	281	34	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	yr	mo	d	h	min	s	North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s) ob	Gap	DM	Hypo auth *								
										M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)					Tr Pl	z						
PRN76	376	1976	8	27	8	2	50.540	18.456	-65.498	17.8	3.20	62.5	242	16	5.3	347	41	10.7	135	44	68	0.23	9	314	72	D	1
	377	1976	8	27	10	34	4.310	18.505	-66.647	15.0	2.90	4.3	182	7	1.4	86	40	2.3	280	49	68	0.18	10	206	50	D	1
	378	1976	8	27	14	4	34.590	18.409	-65.924	5.1	0.40	5.4	290	6	22.8	198	10	38.6	51	78	68	0.01	5	263	41	D	1
	379	1976	8	28	2	47	58.400	17.816	-66.957	10.1	1.10	3.0	16	16	0.5	116	31	48.2	263	54	68	0.03	6	249	69	D	1
	380	1976	8	28	18	59	41.110	18.157	-66.813	11.4	1.20	0.4	85	9	1.2	352	18	0.9	200	69	68	0.06	9	143	34	C	1
	381	1976	8	29	1	22	43.110	18.554	-65.639	36.5	1.50	22.7	318	9	63.5	224	25	28.0	67	63	68	0.11	5	325	64	D	1
	382	1976	8	30	1	00	11.640	17.957	-65.444	0.5	1.80	3.2	86	16	6.5	341	42	3.9	191	43	68	0.07	6	329	77	D	1
	383	1976	8	30	9	15	22.130	18.020	-65.609	14.6	1.00	8.8	195	7	16.6	288	26	7.3	91	62	68	0.08	5	314	65	D	1
	384	1976	9	1	17	18	27.070	18.308	-66.854	1.7	0.80	3.6	87	1	15.7	357	1	>99.9	221	88	68	0.06	5	227	33	D	1
	385	1976	9	1	22	47	49.120	17.864	-66.130	7.1	1.20	1.2	266	3	2.8	175	11	12.0	12	78	68	0.13	9	240	47	D	1
	386	1976	9	2	11	48	21.250	17.914	-66.264		1.70	0.9	264	0	3.0	354	0	>99.9	90	89	68	0.17	11	207	43	D	1
	387	1976	9	3	7	56	42.690	18.148	-67.368	16.1	...	12.7	214	4	16.1	304	4	>99.9	78	84	68	0.10	5	285	41	D	1
	388	1976	9	3	10	8	28.070	18.922	-67.010	21.5	2.20	3.1	69	25	43.4	175	51	9.7	308	48	68	0.15	8	297	94	D	1
	389	1976	9	5	7	1	49.440	18.320	-67.048	12.2	1.00	8.8	236	10	3.2	143	15	23.4	358	71	68	0.01	5	158	48	D	1
	390	1976	9	6	8	44	37.190	17.799	-66.163	14.2	1.30	1.7	132	17	1.2	264	2	0.7	238	43	68	0.10	11	239	54	C	1
	391	1976	9	7	20	57	20.760	17.803	-66.864	10.0	1.10	4.7	86	4	13.9	177	16	>99.9	343	73	68	0.21	5	278	50	D	1
	392	1976	9	8	22	2	5.040	18.842	-68.093	7.2	2.60	17.1	143	26	53.1	38	28	>99.9	268	50	68	0.10	5	343	..	D	1
	393	1976	9	10	3	22	38.600	18.347	-66.195	19.7	0.90	1.3	206	15	2.6	302	23	1.0	85	62	68	0.03	6	287	35	D	1
	394	1976	9	12	2	48	13.610	17.961	-67.109	14.7	1.30	2.8	208	13	1.5	304	24	0.5	91	62	68	0.04	6	283	51	D	1
	395	1976	9	13	23	30	35.350	18.027	-66.562	13.6	1.70	1.7	0	16	1.0	256	42	0.9	107	43	68	0.11	10	179	45	C	1
396	1976	9	14	00	41	59.820	18.609	-66.111	77.5	1.70	11.8	173	22	3.1	276	28	4.9	50	52	68	0.20	10	265	55	D	1	
397	1976	9	14	6	15	10.730	19.243	-65.700	0.7	3.20	29.9	214	13	5.1	115	34	2.0	321	52	68	0.11	9	311	..	D	1	
398	1976	9	14	22	57	43.080	17.925	-67.011	13.9	0.10	10.4	14	14	5.2	110	22	19.3	255	63	68	0.01	5	251	38	D	1	
399	1976	9	15	2	39	44.370	17.953	-66.981	9.4	1.20	2.5	359	14	0.8	93	15	3.7	228	69	68	0.11	9	228	34	D	1	
400	1976	9	15	12	31	32.470	18.480	-65.989	121.7	1.90	16.8	175	20	5.3	281	37	13.0	62	46	68	0.28	11	240	44	D	1	
401	1976	9	15	14	49	31.520	18.104	-67.200	19.3	1.00	3.7	32	2	4.2	124	45	7.7	301	44	68	0.11	6	283	55	D	1	
402	1976	9	17	20	6	11.640	18.098	-66.479	1.6	1.30	1.0	91	1	2.8	181	4	36.5	347	85	68	0.20	10	162	35	C	1	
403	1976	9	17	20	40	18.860	18.072	-66.588	8.2	0.70	4.7	219	4	9.4	127	25	22.8	317	64	68	0.15	5	177	47	D	1	
404	1976	9	17	21	40	44.340	18.132	-66.472	14.3	0.40	3.8	88	15	10.7	186	28	27.7	333	57	68	0.10	5	156	34	D	1	
405	1976	9	18	3	51	32.930	19.150	-65.790	19.8	1.80	>99.9	201	10	22.5	104	36	15.0	304	52	68	0.25	6	327	..	D	1	
406	1976	9	18	12	16	56.400	18.171	-66.844	10.0	0.80	2.4	269	1	9.0	179	41	4.9	1	48	68	0.26	7	170	27	D	1	
407	1976	9	18	14	30	16.490	17.831	-66.786	7.0	1.60	1.3	100	13	2.5	201	40	4.6	356	47	68	0.18	11	225	43	D	1	
408	1976	9	21	15	36	35.460	18.058	-66.940	23.2	0.90	1.4	96	11	2.9	0	27	7.4	206	60	68	0.07	6	161	27	C	1	
409	1976	9	22	2	39	36.290	18.126	-66.524	54.5	1.30	3.1	84	4	8.9	175	19	5.7	343	70	68	0.23	10	179	43	D	1	
410	1976	9	22	13	46	51.810	17.377	-66.843	42.6	...	4.5	105	12	23.9	200	21	62.5	348	65	68	0.10	6	286	..	D	1	
411	1976	9	23	3	44	16.550	18.122	-67.015	8.7	1.40	3.7	356	3	1.6	88	38	6.6	263	51	68	0.32	12	110	34	C	1	
412	1976	9	23	7	46	24.010	18.847	-66.245	25.3	1.60	22.5	184	5	5.4	278	37	10.0	87	52	68	0.15	6	298	82	D	1	
413	1976	9	24	1	40	22.670	18.117	-67.067		1.40	1.8	26	1	2.0	116	3	8.4	278	86	68	0.18	8	153	34	C	1	
414	1976	9	26	5	25	24.200	18.757	-66.543	52.9	1.90	1.9	267	1	2.7	358	33	10.7	175	56	68	0.22	15	263	66	D	1	
415	1976	9	26	14	42	7.290	18.237	-67.066	15.1	0.40	25.3	308	22	16.6	206	27	3.4	72	53	68	0.29	6	259	45	D	1	
416	1976	9	26	22	41	36.790	18.269	-66.264	65.4	2.00	2.5	280	13	6.4	185	19	4.2	43	66	68	0.22	11	146	36	D	1	
417	1976	9	27	5	57	59.200	19.268	-66.087	10.0	...	18.3	281	5	90.9	15	39	>99.9	185	50	68	0.12	5	323	..	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s)	ob Gap	DM	Q	Hypo auth *							
	yr	mo	d	h	min s				M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)						Tr Pl	%					
PRN76	418	1976	9	27	12 32.310	19.145	-66.638	31.0	2.3D	3.6	85	1	5.6	355	8	58.6	182	81	68	0.23	11	295	..	D	1	
	419	1976	9	30	20 5 31.720	18.105	-66.485	1.1	1.4D	1.4	91	1	4.4	181	2	72.4	335	87	68	0.27	10	159	35	C	1	
	420	1976	9	30	22 7 48.050	18.092	-66.455	0.3	0.8D	1.6	273	0	4.6	183	1	>99.9	3	88	68	0.26	9	165	32	C	1	
	421	1976	10	1	9 6 5.270	18.885	-65.709	16.3	2.2D	26.2	206	24	1.6	310	28	6.6	81	51	68	0.06	7	311	96	D	1	
	422	1976	10	2	1 45 2.490	17.885	-65.550	31.5	1.1D	49.7	195	18	16.0	98	21	33.5	322	61	68	0.39	6	327	68	D	1	
	423	1976	10	3	4 6 23.470	19.094	-66.103	18.3	3.0D	1.8	283	11	15.5	189	18	5.4	43	68	68	0.10	9	299	97	D	1	
	424	1976	10	3	10 4 8.240	18.141	-66.047	33.0	1.2D	1.6	263	1	1.9	353	6	3.0	163	83	68	0.05	5	286	58	D	1	
	425	1976	10	4	22 55 11.680	17.773	-66.732	0.7	...	6.3	238	0	22.8	148	1	>99.9	327	88	68	0.05	8	124	20	B	1	
	426	1976	10	5	4 40 12.910	18.928	-66.426	22.9	1.8D	5.3	31	6	2.6	298	22	9.1	136	67	68	0.20	9	279	95	D	1	
	427	1976	10	6	8 19 44.550	17.894	-65.986	9.7	1.0D	0.6	103	2	1.0	193	8	2.1	0	81	68	0.02	6	299	47	C	1	
	428	1976	10	6	8 21 7.790	17.881	-65.984	10.6	0.3D	0.6	264	9	1.0	167	35	2.5	7	53	68	0.02	6	303	49	C	1	
	429	1976	10	7	6 4 3.880	18.227	-67.161	16.1	3.3D	7.3	267	24	3.0	14	32	3.2	147	47	68	0.33	12	211	22	D	1	
	430	1976	10	7	6 12 54.760	18.249	-67.221	28.4	1.1D	2.8	176	8	8.5	267	8	7.3	41	78	68	0.24	8	239	30	D	1	
	431	1976	10	7	23 16 35.850	18.237	-67.165	22.0	1.5D	0.9	170	7	2.9	265	37	2.0	70	52	68	0.10	10	214	27	D	1	
	432	1976	10	7	23 16 35.850	18.227	-67.179	22.0	2.5D	1.2	85	5	1.6	353	32	1.5	182	57	68	0.14	12	121	22	B	1	
	433	1976	10	8	19 31 34.370	18.657	-66.902	18.6	1.7D	9.1	349	1	4.5	79	5	54.6	248	84	68	0.32	8	250	70	D	1	
	434	1976	10	8	22 18 43.220	17.892	-65.983	11.5	0.5D	6.7	268	16	12.1	167	34	43.2	20	51	68	0.03	5	300	48	D	1	
	435	1976	10	9	3 7 48.300	17.882	-65.989	9.2	0.4D	5.6	262	8	11.3	168	28	32.8	7	60	68	...	5	302	49	D	1	
	436	1976	10	9	21 27 38.070	18.983	-65.426	8.9	2.3D	15.3	313	16	7.1	213	30	73.0	68	55	68	0.17	6	321	..	D	1	
	437	1976	10	10	4 18 9.340	17.878	-65.988	9.6	0.2D	0.6	264	8	1.2	169	31	3.2	7	57	68	0.03	6	303	49	C	1	
	438	1976	10	10	12 45 4.040	18.227	-67.174	21.2	3.0D	2.0	170	4	1.7	79	15	2.7	274	74	68	0.21	14	120	22	C	1	
	439	1976	10	11	23 38 26.070	18.233	-67.181	20.9	2.5D	1.7	6	24	3.9	258	36	1.5	123	44	68	0.21	18	221	22	D	1	
	440	1976	10	12	4 46 30.710	18.584	-67.441	12.4	2.9D	4.8	136	8	2.3	44	13	1.4	256	74	68	0.10	11	311	74	D	1	
	441	1976	10	12	8 7 56.760	17.442	-66.169	11.7	2.9D	2.1	255	1	10.3	165	2	46.6	12	87	68	0.13	10	281	87	D	1	
	442	1976	10	13	16 13 48.240	18.544	-67.084	7.9	1.5D	25.1	305	16	10.3	47	35	30.7	195	50	68	...	5	297	59	D	1	
	443	1976	10	14	9 36 45.000	18.490	-66.724	121.3	2.0D	2.0	264	0	9.6	174	18	2.9	353	72	68	0.20	15	235	52	D	1	
	444	1976	10	14	10 51 3.340	17.940	-66.997	9.7	0.8D	3.5	5	2	1.0	95	11	4.7	265	78	68	0.07	6	239	36	D	1	
	445	1976	10	14	13 23 30.150	18.280	-65.815	12.0	2.4D	3.7	159	2	11.0	69	17	2.4	255	72	68	0.16	7	263	36	D	1	
	446	1976	10	15	9 48 47.180	18.812	-64.917	10.0	2.5D	43.3	336	23	15.3	229	34	>99.9	93	46	68	0.25	5	345	..	D	1	
	447	1976	10	15	15 54 38.920E	18.454	-67.118	0.1	1.1D	10.8	34	1	15.2	304	1	>99.9	169	88	68	0.34	5	317	49	D	1	
	448	1976	10	15	16 45 15.980	17.970	-67.127	15.4	1.3D	1.2	326	8	2.6	234	13	0.7	87	74	68	0.10	9	284	48	D	1	
	449	1976	10	16	00 41 9.580	18.008	-65.392	9.7	1.5D	20.6	346	5	10.6	77	8	8.1	225	80	68	0.01	5	330	81	D	1	
	450	1976	10	16	18 24 58.640	18.508	-66.278	82.1	2.0D	2.6	277	5	8.2	182	40	5.4	13	49	68	0.17	10	214	48	D	1	
	451	1976	10	17	19 2 41.840	17.757	-66.734	10.3	0.6D	5.6	232	9	21.6	140	10	73.4	4	76	68	0.08	5	297	49	D	1	
	452	1976	10	18	23 30 21.790	17.954	-66.776	15.9	0.7D	15.4	176	3	5.2	267	16	43.9	75	73	68	0.05	5	240	41	D	1	
	453	1976	10	19	1 41 18.240	18.618	-67.507	10.6	1.8D	6.6	52	7	10.9	145	27	3.4	309	62	68	0.24	9	315	81	D	1	
	454	1976	10	19	14 53 5.510	18.329	-65.895	36.3	1.6D	2.7	274	15	7.1	12	30	4.8	160	55	68	0.16	8	229	32	D	1	
	455	1976	10	19	20 9 26.650E	18.325	-66.144	...	...	1.0D	1.7	246	0	3.6	336	0	>99.9	90	89	68	0.24	7	211	29	D	1
	456	1976	10	20	2 46 11.320	18.777	-66.729	27.4	1.5D	2.4	247	0	9.8	337	0	>99.9	90	89	68	0.14	6	270	81	D	1	
	457	1976	10	21	17 26 28.490	18.230	-67.035	25.8	1.0D	6.5	359	8	>99.9	267	16	29.8	115	72	68	0.05	5	214	25	D	1	
	458	1976	10	23	2 57 50.530	17.989	-65.381	8.6	1.4D	17.2	216	4	33.3	307	16	9.9	112	73	68	0.02	5	331	83	D	1	
	459	1976	10	23	4 52 6.700	18.000	-65.404	6.7	1.4D	6.9	57	16	10.3	159	37	12.7	308	48	68	0.15	6	330	80	D	1	
	460	1976	10	24	2 00 38.970	17.785	-66.782	3.3	1.4D	5.3	253	2	3.6	162	20	9.1	348	69	68	0.24	8	262	54	D	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC) yr mo d h min s	North latitude (deg)	East longitude (deg)	Focal depth (km)	M	Error ellipsoid axes						Rms No. (s) ob	Hypo auth *
						a(km)	Tr Pl	b(km)	Tr Pl	c(km)	Tr Pl	%	
PRN76	461 1976 10 26 4 38 47.250	18.987	-66.247	19.6	2.50	1.3 280 17	3.2 181 26	4.1 40 58	68 0.12	13 277 97 D	1		1
	462 1976 10 27 5 13 11.110	18.603	-66.375	104.2	1.80	3.7 280 12	15.3 183 31	5.4 29 56	68 0.24	11 226 59 D	1		1
	463 1976 10 27 5 17 13.240	17.846	-65.571	0.4	1.20	3.2 27 0	1.5 117 1	>99.9 297	89 68 0.05	6 327 68 D	1		1
	464 1976 10 27 21 24 5.600	18.580	-66.390	90.5	2.10	2.4 271 1	10.0 180 21	4.6 4 68	68 0.21	12 222 58 D	1		1
	465 1976 10 27 22 27 5.650	18.391	-66.451	103.6	1.80	2.2 272 4	8.4 179 33	5.8 9 56	68 0.16	11 186 44 D	1		1
	466 1976 10 29 3 8 49.410	17.980	-66.452	15.8	0.90	2.9 8 0	0.9 98 1	>99.9 278	89 68 0.12	9 206 35 D	1		1
	467 1976 10 29 5 53 38.400	17.999	-66.459	21.8	...	5.4 92 12	19.5 186 14	44.3 324	71 68 0.02	5 216 35 D	1		1
	468 1976 10 29 16 29 55.940	19.358	-67.238	0.2	3.40	14.1 148 9	4.4 53 31	6.6 252	57 68 0.22	12 314 .. D	1		1
	469 1976 10 30 6 20 33.590	18.514	-65.405	12.4	2.00	8.2 156 3	48.9 246 12	4.3 52	77 68 0.22	9 319 83 D	1		1
	470 1976 10 30 11 17 53.040	18.692	-66.487	59.2	1.50	3.2 278 5	5.6 11 31	9.2 179	58 68 0.20	10 238 58 D	1		1
	471 1976 10 30 21 36 43.420	18.188	-67.113	14.0	1.40	0.9 345 3	2.1 77 38	3.3 252	51 68 0.05	6 188 26 C	1		1
	472 1976 10 31 13 30 33.850	17.991	-67.020	14.4	0.80	2.5 87 18	13.6 184 20	8.1 319	62 68 0.03	5 206 36 D	1		1
	473 1976 10 31 22 10 20.800	18.155	-67.330	11.0	2.00	7.4 140 1	4.6 230 9	2.8 43	80 68 0.25	9 321 69 D	1		1
	474 1976 11 2 12 12 13.770	19.074	-66.530	10.5	2.10	4.7 119 18	6.7 218 24	62.1 357	59 68 0.26	8 290 .. D	1		1
	475 1976 11 2 15 16 10.470	18.605	-66.948	13.6	0.80	5.5 185 2	1.3 93 45	4.8 276	44 68 0.10	7 282 61 D	1		1
	476 1976 11 3 00 47 45.030	18.222	-66.438	69.0	1.20	10.6 180 11	3.3 272 13	6.4 50	72 68 0.24	10 149 32 D	1		1
	477 1976 11 3 17 59.070	18.131	-67.607	37.1	2.00	4.2 167 10	41.9 261 21	6.9 53	66 68 0.13	9 315 61 D	1		1
	478 1976 11 3 17 57.880	17.986	-65.413	15.5	1.30	19.4 211 6	19.8 305 33	>99.9 111	56 68 0.20	5 330 86 D	1		1
	479 1976 11 3 19 32 14.400	18.711	-65.760	27.2	2.50	4.0 14 18	5.9 116 34	1.7 261	50 68 0.15	11 311 76 D	1		1
	480 1976 11 3 23 36 49.640	18.056	-66.218	10.5	0.90	1.2 272 1	1.8 181 8	4.5 101	68 0.18	11 177 32 C	1		1
	481 1976 11 6 11 41 58.250	18.334	-65.950	7.6	0.80	18.0 5 10	4.9 270 28	11.9 113	60 68 0.13	5 211 32 C	1		1
	482 1976 11 6 19 36 54.000	18.127	-66.041	23.3	0.70	0.6 313 13	1.2 51 34	2.5 206	53 68 0.03	6 135 22 C	1		1
	483 1976 11 8 12 28 13.310	18.545	-67.542	17.5	2.00	3.8 217 3	5.0 307 3	58.8 81	85 68 0.14	8 326 76 D	1		1
	484 1976 11 9 15 50 57.430	18.807	-66.080	48.8	2.10	4.2 287 10	8.8 20 17	24.4 167	70 68 0.31	10 270 87 D	1		1
	485 1976 11 9 21 20 41.970	17.972	-66.590	10.7	0.70	3.3 219 18	14.2 325 40	6.4 110	44 68 0.15	6 275 53 D	1		1
	486 1976 11 10 5 7 3.840	17.779	-66.771	8.7	1.20	1.5 258 3	2.9 167 13	17.8 1 76	68 0.08	6 290 55 D	1		1
	487 1976 11 11 00 20 56.030	18.198	-67.218	13.7	0.40	8.4 80 5	3.1 349 18	3.8 185	71 68 0.17	6 238 27 D	1		1
	488 1976 11 11 7 9 50.950	17.786	-65.829	16.2	1.20	21.6 274 0	35.8 4 1	>99.9 184	89 68 0.09	5 321 58 D	1		1
	489 1976 11 12 20 11 26.340	18.318	-66.139	0.0	1.80	0.6 260 0	1.5 350 0	>99.9 90	90 68 0.15	8 176 39 C	1		1
	490 1976 11 13 3 43 12.520	17.780	-66.747	9.9	1.70	11.4 249 5	26.2 257 19	>99.9 353	70 68 0.07	5 292 57 D	1		1
	491 1976 11 13 23 8 48.260	19.017	-65.899	21.6	2.20	3.3 315 18	7.4 208 41	5.4 63	43 68 0.20	9 295 .. D	1		1
	492 1976 11 14 8 57 15.340	17.815	-66.783	16.2	0.60	5.9 252 3	17.0 162 4	>99.9 19	85 68 0.08	5 282 51 D	1		1
	493 1976 11 14 9 6 24.710	18.781	-66.230	21.6	1.80	2.5 281 5	4.0 11 11	35.8 166	77 68 0.10	7 293 75 D	1		1
	494 1976 11 14 12 12 55.570	18.463	-65.479	85.9	1.80	13.8 186 23	7.1 291 31	5.2 66	49 68 0.24	10 316 74 D	1		1
	495 1976 11 15 4 9 55.210	19.190	-66.492	29.9	2.60	3.6 271 0	8.4 1 3	>99.9 181	87 68 0.27	13 289 .. D	1		1
	496 1976 11 20 9 17 1.960	18.601	-67.002	24.6	2.20	2.4 327 25	1.0 73 31	2.7 206	48 68 0.17	16 255 48 D	1		1
	497 1976 11 20 14 41 28.650	18.708	-67.398	26.9	2.30	7.5 205 13	5.6 109 22	2.8 323	63 68 0.24	10 308 84 D	1		1
	498 1976 11 21 2 45 17.750	18.454	-65.887	20.3	2.50	48.4 30 17	7.1 288 34	22.3 143	50 68 0.29	6 285 46 D	1		1
	499 1976 11 22 10 40 41.030	18.655	-65.769	49.4	3.10	3.7 295 25	26.8 41 30	11.3 172	48 68 0.19	10 293 70 D	1		1
	500 1976 11 22 22 55 19.780	18.313	-67.076	27.2	0.80	1.5 163 14	1.8 64 31	3.2 274	55 68 0.15	10 158 34 C	1		1
	501 1976 11 23 1 29 0.960	18.635	-66.457	88.2	1.60	1.8 65 22	1.2 5 169	30 3.1	305 51 68 0.18	12 256 66 D	1		1
	502 1976 11 24 14 9 57.530	17.623	-65.979	26.4	1.70	9.9 134 10	4.8 231 31	5.6 28	56 68 0.21	7 305 77 D	1		1
	503 1976 11 24 20 27 30.680	18.592	-66.448	14.1	1.50	25.6 341 2	6.0 249 42	>99.9 74	47 68 0.16	4 294 64 D	1		1

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No. (s) ob	Hypo auth *					
		yr	mo	d h min s				M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)			Tr Pl	%			
PRN76	504	1976	11	26	6 43	6.260	17.737	-66.947	40.7	1.2D	0.4	98 12	2.3	359 34	0.6	204 53	68 0.01	6 272 51	C	1
	505	1976	11	26	12 46	30.440	18.123	-68.008	114.7	3.1D	15.9	338 24	4.6	82 30	14.8	216 50	68 0.21	9 328 98	D	1
	506	1976	11	26	15 42	27.370E	18.284	-66.131	0.2	1.5D	1.0	87 1	4.8	177 8	87.8	350 81	68 0.13	7 163 50	C	1 *
	507	1976	11	26	16 59	8.150	18.312	-67.243	18.7	1.1D	3.2	282 13	1.3	188 17	5.1	48 68	68 0.08	7 256 37	D	1
	508	1976	11	27	16 55	15.020	18.536	-65.327	11.6	3.7D	4.6	339 7	14.7	76 44	79.5	242 45	68 0.19	10 322 92	D	1
	509	1976	11	27	18 35	24.400	17.985	-67.049	6.1	1.7D	1.6	88 19	3.3	348 27	11.8	208 56	68 0.10	6 222 39	D	1
	510	1976	11	27	19 42	7.360	17.789	-66.806	9.1	1.3D	2.5	239 8	6.1	146 17	31.6	353 71	68 0.19	7 281 48	D	1
	511	1976	11	28	6 8	24.700	17.621	-65.963	23.7	1.3D	2.8	96 3	2.3	186 14	11.5	355 75	68 0.07	7 333 77	D	1
	512	1976	11	28	17 50	5.610	19.331	-64.558	17.1	3.5D	40.3	322 0	>99.9	232 0	>99.9	270 90	68 0.32	8 336 **	D	1 *
	513	1976	11	29	21 35	21.020	19.060	-65.490	16.6	2.9D	10.4	7 14	5.8	265 40	20.9	113 46	68 0.32	11 314 **	D	1 *
	514	1976	11	30	3 52	5.580	19.098	-65.589	5.0	3.4D	3.5	309 5	19.1	42 30	49.9	211 59	68 0.15	10 311 **	D	1 *
	515	1976	11	30	4 53	22.790	18.767	-66.532	65.9	2.0D	2.6	84 4	5.7	351 39	18.0	179 50	68 0.27	12 264 83	D	1 *
	516	1976	11	30	7 7	36.470	18.069	-65.682	20.0	2.4D	6.3	189 10	9.9	284 24	>99.9	78 63	68 0.28	4 360 56	D	1 *
	517	1976	11	30	18 32	24.170	19.065	-66.415	5.7	2.5D	1.8	107 11	2.8	203 30	21.2	0 57	68 0.21	14 290 **	D	1 *
	518	1976	12	1	11 27	59.130	19.070	-65.586	4.4	2.5D	4.3	26 11	10.0	120 21	2.3	270 66	68 0.14	8 323 **	D	1 *
	519	1976	12	1	22 13	5.990	18.589	-65.613	42.7	1.6D	16.5	309 0	9.8	39 45	23.2	219 45	68 0.26	6 328 69	D	1 *
	520	1976	12	2	20 34	58.510	18.079	-66.472	5.6	1.1D	0.9	94 7	1.8	185 12	19.4	335 76	68 0.11	7 170 34	C	1
	521	1976	12	3	4 3	56.290	17.778	-66.015	12.7	1.1D	14.8	267 24	11.8	155 40	25.7	20 40	68 0.02	5 319 59	D	1
	522	1976	12	3	17 51	21.900	18.337	-66.835	17.5	1.5D	4.2	127 2	8.3	217 4	43.5	10 85	68 0.19	6 225 35	D	1
	523	1976	12	4	10 57	51.390	18.388	-66.337	43.4	1.4D	2.4	78 2	6.1	168 15	4.1	341 74	68 0.24	12 231 36	D	1
	524	1976	12	4	16 1	59.410	18.387	-65.932	6.2	1.6D	1.7	278 16	5.3	174 41	4.6	25 44	68 0.20	9 251 38	D	1
	525	1976	12	5	7 58	15.610	17.827	-67.012	15.5	1.3D	29.7	198 3	12.8	290 39	5.6	104 50	68 0.12	5 284 43	D	1
	526	1976	12	5	11 24	22.050	17.796	-66.923	7.4	0.9D	4.4	97 4	12.2	188 18	75.3	355 71	68 0.05	5 282 46	D	1
	527	1976	12	6	1 14	23.610	17.806	-67.043	43.0	1.2D	17.6	199 9	3.4	104 29	12.5	304 59	68 0.17	7 270 47	D	1
	528	1976	12	6	6 11	48.470	18.727	-66.933	63.9	1.8D	2.8	81 19	6.9	184 34	4.4	327 49	68 0.27	15 263 63	D	1
	529	1976	12	6	7 24	30.050	18.118	-67.016	24.2	0.8D	9.5	158 24	10.2	50 35	25.6	274 45	68 0.10	5 149 36	D	1
	530	1976	12	6	8 4	48.850	18.125	-66.999	19.9	0.9D	2.9	348 6	1.9	81 24	10.1	245 65	68 0.18	8 114 34	C	1
	531	1976	12	6	19 19	14.060	18.760	-65.324	27.5	2.4D	6.5	326 0	57.4	236 0	>99.9	270 89	68 0.16	7 319 **	D	1 *
	532	1976	12	7	9 21	11.260E	18.253	-66.099	3.9	2.3D	1.6	193 3	1.0	283 4	3.0	66 85	68 0.15	10 132 25	B	1 *
	533	1976	12	7	17 54	53.910	18.306	-66.861	2.2	0.9D	1.0	97 6	2.0	6 15	4.2	208 73	68 0.14	9 154 32	C	1
	534	1976	12	7	21 11	17.720	18.156	-67.137	18.6	0.4D	11.2	46 0	23.5	315 33	7.6	136 56	68 0.04	5 263 49	D	1
535	1976	12	8	9 39	3.690	18.068	-67.264	15.4	...	21.6	239 3	10.6	149 8	6.1	349 81	68 0.02	5 307 61	D	1	
536	1976	12	8	17 20	48.270E	18.192	-67.147	0.8	0.8D	7.3	238 5	18.2	329 7	86.5	112 81	68 0.20	4 301 51	D	1 *	
537	1976	12	8	18 38	29.880	18.357	-66.832	28.2	...	2.3	110 1	5.6	200 5	15.2	8 84	68 0.16	7 205 33	D	1	
538	1976	12	8	23 21	41.580	19.217	-67.214	18.1	2.8D	9.8	162 6	3.5	68 30	6.6	262 59	68 0.20	11 311 **	D	1	
539	1976	12	9	19 22	0.210	17.997	-67.130	19.1	1.0D	3.7	233 21	2.5	131 29	1.5	353 53	68 0.06	6 291 48	D	1	
540	1976	12	11	6 5	39.230	18.139	-66.048	23.6	1.8D	4.3	66 8	6.2	335 9	21.7	197 77	68 0.06	5 131 27	D	1	
541	1976	12	11	6 41	8.310	18.252	-66.610	4.3	1.6D	0.7	77 2	1.7	347 12	7.3	177 77	68 0.13	12 156 51	C	1	
542	1976	12	11	6 41	35.830	19.305	-66.298	22.5	2.5D	16.6	277 0	>99.9	7 0	>99.9	90 90	68 0.03	5 304 **	D	1	
543	1976	12	12	6 32	29.970	18.492	-67.100	21.6	1.5D	2.4	45 28	7.3	295 33	13.1	167 44	68 0.15	7 280 64	D	1	
544	1976	12	12	6 58	5.710	17.908	-65.658	21.8	1.3D	10.5	85 17	21.0	186 32	34.6	332 52	68 0.07	5 320 57	D	1	
545	1976	12	13	1 30	49.940	17.986	-66.739	11.9	2.0D	6.0	343 33	1.2	100 35	1.9	223 37	68 0.19	11 188 37	D	1	
546	1976	12	13	7 28	38.810	18.030	-65.576	12.9	1.2D	1.1	303 11	1.0	37 21	0.6	187 66	68 0.03	6 317 61	C	1	

Table 5.--Catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.		Hypo
Name Index	yr	mo	d	h	min s	(deg)	(deg)	(km)	a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	(s) ob Cap NM	0 auth *
PRN76	547	1976	12	13	7 30 48.070	18.277	-66.196	4.9	2.6D	0.8 274 13	1.5	8 19	3.1 151 66 68 0.12	10 181 40 C	1		
	548	1976	12	13	17 3 21.590	17.895	-66.590	14.1	0.8D	27.8 116 12	17.7	15 41	4.6 218 46 68 0.05	5 283 54 D	1		
	549	1976	12	13	21 00 36.440	18.110	-66.481	12.0	0.7D	1.2 93 17	4.6 353 29	3.4 209 55 68 0.13	7 158 35 C	1			
	550	1976	12	14	3 25 25.590	18.131	-66.056	29.6	0.9D	1.2 63 11	1.8 330 14	2.8 189 72 68 0.05	6 147 28 C	1			
	551	1976	12	14	12 27 42.720	18.445	-65.630	22.5	2.8D	5.1 56 6	2.0 149 23	1.3 313 66 68 0.06	8 315 66 D	1			
	552	1976	12	16	8 10 49.310	18.733	-66.267	60.7	3.3D	2.4 270 8	11.9 173 42	14.1 9 46 68 0.12	8 264 70 D	1			
	553	1976	12	16	19 19 50.530	18.835	-65.597	11.1	3.4D	4.8 311 3	29.9 43 27	82.1 216 62 68 0.11	7 310 94 D	1			
	554	1976	12	16	21 10 8.970	19.014	-65.880	8.1	2.5D	3.9 154 3	6.4 63 27	2.9 249 62 68 0.13	8 305 .. D	1			
	555	1976	12	17	18 8 39.820E	18.366	-66.473	1.1	1.1D	4.0 262 0	13.6 352 1	>99.9 171 89 68 0.08	5 212 41 D	1 *			
	556	1976	12	17	22 16 18.340	17.942	-66.904	12.3	0.5D	4.0 89 9	19.5 354 29	31.7 194 59 68 0.31	5 229 32 D	1			
	557	1976	12	18	00 12 21.910	18.791	-65.583	13.0	2.4D	2.8 316 5	13.7 49 34	63.6 219 55 68 0.11	8 316 90 D	1			
	558	1976	12	18	12 41 13.320	17.888	-66.919	15.6	..	33.0 186 4	5.2 94 25	7.0 284 64 68 0.15	5 253 37 D	1			
	559	1976	12	19	4 27 52.350	18.412	-65.900	11.1	2.1D	17.4 199 1	5.4 290 39	13.9 107 50 68 0.23	6 274 41 D	1			
	560	1976	12	20	3 4 4.390	18.194	-67.300	23.1	1.0D	7.1 207 19	10.1 101 38	6.4 317 45 68 0.16	6 322 67 D	1			
	561	1976	12	21	20 9 14.700	18.396	-66.019	11.0	1.1D	3.9 269 3	30.0 176 41	14.0 3 48 68 0.04	5 251 41 D	1			
	562	1976	12	23	20 4 9.650	18.550	-66.778	18.5	2.1D	0.7 102 2	1.4 12 4	5.7 218 85 68 0.11	13 218 46 D	1			
	563	1976	12	24	11 29 25.280	18.810	-65.540	26.0	2.0D	7.1 292 13	4.1 196 25	13.5 48 61 68 0.21	9 327 94 D	1			
	564	1976	12	24	20 49 40.370	18.197	-67.530	8.0	1.4D	5.3 323 9	8.5 230 20	9.4 77 67 68 0.27	7 307 51 D	1			
	565	1976	12	24	23 23 51.380	18.969	-65.042	16.7	2.6D	13.7 131 16	3.2 234 38	8.6 22 47 68 0.20	10 340 .. D	1			
	566	1976	12	25	9 00 24.870	19.022	-66.908	44.6	2.9D	4.0 76 7	18.9 344 18	13.5 186 70 68 0.18	10 288 95 D	1			
	567	1976	12	25	21 1 51.980	18.322	-65.746	18.7	2.0D	24.2 64 16	7.3 162 27	6.1 307 58 68 0.29	9 291 43 D	1			
	568	1976	12	26	00 18 38.070	17.819	-66.759	3.1	2.8D	0.8 95 3	2.3 186 9	4.6 347 80 68 0.10	10 226 43 C	1			
	569	1976	12	26	4 6 55.580	18.158	-67.254	0.0	1.2D	3.1 355 1	10.6 264 19	8.4 88 70 68 0.33	10 254 33 D	1			
	570	1976	12	26	7 58 18.690	18.353	-67.218	20.7	1.5D	11.5 291 26	4.6 37 31	3.0 168 47 68 0.29	11 257 41 D	1			
	571	1976	12	26	11 25 3.070	18.373	-67.278	19.5	0.9D	7.0 100 5	2.8 192 22	4.3 358 67 68 0.25	11 280 45 D	1			
	572	1976	12	26	17 37 26.740	18.632	-65.587	14.3	2.1D	3.1 318 2	19.0 50 39	61.6 226 50 68 0.13	7 321 74 D	1			
	573	1976	12	27	7 4 7.580	19.127	-66.262	0.7	2.1D	7.0 13 8	5.4 109 39	3.0 274 49 68 0.23	10 296 .. D	1			
	574	1976	12	28	00 15 39.900	18.562	-67.233	52.4	1.6D	2.7 290 21	1.9 39 40	10.1 179 42 68 0.15	12 295 80 D	1			
	575	1976	12	28	1 51 11.090	18.130	-66.095	31.6	0.8D	11.2 233 7	5.9 325 22	20.5 126 66 68 0.07	5 222 31 D	1			
	576	1976	12	29	9 53 48.860	18.155	-66.176	17.6	1.3D	1.7 260 3	2.5 168 30	7.1 355 59 68 0.25	10 144 37 C	1			
	577	1976	12	30	00 29 5.930	18.029	-65.122	57.1	2.0D	25.5 10 1	14.3 100 30	>99.9 279 59 68 0.01	5 339 .. D	1			
	578	1976	12	30	2 40 5.140	18.009	-67.215	13.3	1.3D	11.6 340 1	23.1 250 18	4.8 74 71 68 0.12	5 306 57 D	1			
	579	1976	12	30	4 10 41.480	18.154	-66.159	14.3	0.6D	0.8 340 2	1.0 71 26	2.1 246 63 68 0.08	8 193 29 C	1			
	580	1976	12	30	10 8 6.690	17.830	-66.761	4.1	1.6D	1.6 91 6	4.0 184 23	7.2 348 66 68 0.18	9 224 42 D	1			
	581	1976	12	30	11 33 11.200	17.784	-66.729	13.1	1.3D	18.5 335 9	4.8 241 21	9.7 87 66 68 0.06	5 284 46 D	1			
	582	1976	12	30	13 22 27.480	18.823	-67.191	26.3	2.0D	11.7 320 16	4.7 224 21	8.8 85 63 68 0.27	9 299 91 D	1			
	583	1976	12	30	14 26 52.440	18.367	-65.855	15.6	2.6D	29.8 44 16	4.3 139 19	1.3 277 64 68 0.12	6 295 37 D	1			
	584	1976	12	31	10 4 19.320	17.790	-66.786	9.4	1.1D	6.2 255 2	31.6 165 3	84.5 19 86 68 0.01	5 281 47 D	1			
	585	1976	12	31	14 1 42.950	18.154	-66.178	17.9	2.0D	1.1 270 1	1.6 0 2	2.2 153 87 68 0.09	8 111 31 B	1			

Table 6.--References for catalog of 1976 earthquakes located by the HYPOELLIPSE program

[Cat, catalog; Auth no., authority number cited in table 5]

Cat	Auth	References
Name	no.	
PRN76	1	U.S. Geological Survey, this report.

Table 7.--Remarks for catalog of 1976 earthquakes located by the HYPOELLIPSE program

Catalog	Remarks
Name Index	
PRN76	51 Probable blast attributed to road construction or quarries.
70	Do.
100	Do.
109	Do.
117	Do.
118	Do.
134	Do.
166	Do.
175	Do.
176	One of a large swarm of earthquakes that occurred between 05/12/76 and 05/16/76 in the Puerto Rico Trench, north of the Virgin Islands.
177	Do.
178	Probable blast attributed to road construction or quarries.
185	One of a large swarm of earthquakes that occurred between 05/12/76 and 05/16/76 in the Puerto Rico Trench, north of the Virgin Islands.
186	Do.
187	Do.
229	Probable blast attributed to road construction or quarries.
243	Do.
245	One of several hundred aftershocks that were recorded following a magnitude 4.6 earthquake northwest of Puerto Rico in the Puerto Rico Trench.
246	Do.
247	Do.
248	Do.
249	Do.
250	Do.
251	Do.
253	Do.
254	Do.
255	Do.
256	Do.
257	Do.
259	Do.
260	Do.
261	Do.
278	Probable blast attributed to road construction or quarries.
315	Do.
317	Do.
318	Do.
434	One of a small swarm of earthquakes that were located north of the town of Barranquitas in northeast Puerto Rico.
435	Do.
436	Do.

Table 7.--Remarks for catalog of 1976 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Remarks
Name Index	
PRN76 437	One of a small swarm of earthquakes that were located north of the town of Barranquitas in northeast Puerto Rico.
438	A large earthquake, magnitude 3.0, that was felt at Mayaguez and originated in the Mona Passage.
447	Probable blast attributed to road construction or quarries.
455	Do.
489	Do.
506	Do.
512	One of a swarm of several dozen earthquakes that originated in the Puerto Rico Trench, north of the Virgin Islands.
513	Do.
514	Do.
515	An aftershock of a large earthquake that occurred on 11/30/76, north of Puerto Rico in the Puerto Rico Trench.
516	One of a swarm of several dozen earthquakes that originated in the Puerto Rico Trench, north of the Virgin Islands.
518	Do.
519	Do.
536	Probable blast attributed to road construction or quarries.
555	Do.

Table 8.--Catalog of 1977 earthquakes located by the HYPOFLIPSE program

[UTC, Coordinated Universal Time; negative latitudes and longitudes are south and west, respectively; M, duration magnitude; a, b, and c, principal axes of confidence ellipsoid; Tr, trend of axis in degrees; Pl, plunge of axis in degrees; %, confidence level; Rms, root mean square of residuals; No. ob, number of observations used in hypocenter computation; Gap, largest azimuthal separation between seismograph stations; DM, distance to third nearest station, in kilometers; Q, quality index; Hypo auth, hypocenter authority meaning person or institution responsible for hypocenter determination, cited by catalog name and authority number in table 9; *, remarks cited by catalog name and index in table 10; leaders (.....) designate instances when data values are unknown or not computed]																									
Catalog	Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes					Rms No. (s)	Hypo										
Name	Index	yr	mo	d	h min s				M	a (km)	Tr	Pl	b (km)	Tr	Pl	c (km)	Tr	Pl	%	ob	Gap	DM	Q	auth	*
PRN77	1	1977	1	1	7 49 11.940	17.740	-66.770	10.8	1.3D	1.7 232 8	5.1 140 19	32.1 343 69	68 0.12	6 290 52 D	1										
	2	1977	1	1	7 49 48.360	17.765	-66.783	12.3	1.2D	0.8 240 8	2.9 147 15	8.7 357 72	68 0.09	6 286 50 D	1										
	3	1977	1	1	8 43 26.520	18.928	-66.370	42.5	2.0D	1.5 288 6	4.2 19 12	10.4 171 76	68 0.20	15 280 87 D	1										
	4	1977	1	1	10 00 20.410	18.631	-65.543	15.4	2.5D	5.5 323 5	25.9 56 34	>99.9 226 55	68 0.16	8 318 6 D	1										
	5	1977	1	1	13 8 40.490	18.902	-67.210	14.1	3.4D	2.3 56 3	18.0 323 42	36.2 150 47	68 0.13	9 302 .. D	1										
	6	1977	1	1	13 34 39.680	18.856	-67.247	26.5	2.8D	3.8 235 0	26.7 325 0	>99.9 90 89	68 0.16	9 303 95 D	1										
	7	1977	1	2	00 5 51.050	18.853	-66.116	38.4	2.0D	2.2 273 8	3.8 5 17	16.1 158 71	68 0.20	13 283 82 D	1										
	8	1977	1	2	2 14 20.840	17.980	-67.052	4.9	2.1D	3.2 359 19	0.9 101 31	2.7 243 52	68 0.16	11 221 40 D	1										
	9	1977	1	2	8 48.960	17.970	-66.512	12.1	0.9D	0.6 112 28	1.2 219 29	2.0 347 47	68 0.09	10 208 41 C	1										
	10	1977	1	2	8 9 40.180	17.957	-66.512	11.3	1.1D	0.7 107 8	2.6 9 43	1.3 205 45	68 0.13	12 210 42 D	1										
	11	1977	1	2	11 22 55.270	19.451	-66.735	28.3	2.6D	7.0 292 0	20.5 22 0	>99.9 90 89	68 0.26	6 320 .. D	1										
	12	1977	1	2	17 3 39.110	18.069	-67.168	23.0	0.8D	32.3 252 27	16.6 2 34	11.1 132 43	68 0.04	5 267 51 D	1										
	13	1977	1	2	23 5 10.550	18.240	-66.306	15.2	1.5D	4.5 357 14	1.5 261 24	2.5 115 61	68 0.27	11 133 31 C	1										
	14	1977	1	3	31 18.540E	18.027	-67.082	0.4	1.3D	1.9 131 8	0.9 40 9	5.1 262 77	68 0.10	7 157 42 C	1										*
	15	1977	1	3	6 3 52.870	19.076	-66.087	48.0	1.9D	3.0 302 16	4.1 37 16	29.5 169 67	68 0.26	12 298 .. D	1										
	16	1977	1	3	8 7 16.440	18.387	-65.702	16.1	2.1D	42.0 237 2	6.7 327 21	9.0 141 68	68 0.20	7 309 49 D	1										
	17	1977	1	3	9 4 43.580	18.740	-67.205	49.6	1.6D	7.2 59 10	20.0 327 11	21.9 190 75	68 0.35	10 297 82 D	1										
	18	1977	1	3	17 11 18.620	17.828	-66.814	12.5	0.8D	1.6 264 1	7.0 174 21	13.2 356 68	68 0.08	6 273 45 D	1										
	19	1977	1	3	22 40 6.440	18.601	-66.990	78.9	...	3.6 198 17	1.6 92 41	1.9 305 43	68 0.06	8 286 63 D	1										
	20	1977	1	4	18 39 31.570	17.870	-65.590	9.7	1.8D	5.6 8 10	4.0 272 30	2.6 115 58	68 0.17	8 319 65 D	1										
	21	1977	1	5	6 3 54.920	18.654	-66.311	31.1	1.5D	3.0 78 1	6.1 348 23	15.7 171 66	68 0.24	8 280 61 D	1										
	22	1977	1	5	8 51 27.850	17.846	-65.604	10.9	1.4D	0.6 286 15	0.7 21 15	0.4 153 68	68 0.02	6 332 76 C	1										
	23	1977	1	5	12 59 45.540	18.573	-66.967	76.9	1.4D	30.5 311 11	46.0 212 42	11.6 53 46	68 0.22	5 281 64 D	1										
	24	1977	1	5	18 33 21.110	18.145	-66.176	16.2	1.5D	1.1 103 7	1.5 195 12	4.4 344 75	68 0.13	9 161 37 C	1										
	25	1977	1	6	10 45 29.990	18.239	-67.078	41.5	1.0D	8.4 98 21	18.4 204 36	12.4 345 46	68 0.23	6 288 46 D	1										
	26	1977	1	7	21 52 37.300	18.111	-66.006	17.8	1.3D	1.0 28 6	0.7 297 11	2.5 147 77	68 0.09	10 140 25 C	1										
	27	1977	1	8	1 3 16.140	18.457	-65.994	20.9	3.1D	>99.9 256 6	12.4 165 7	12.8 27 80	68 0.20	6 329 85 D	1										
	28	1977	1	8	6 8 39.130	18.089	-66.021	17.9	0.7D	2.0 32 7	1.1 301 9	4.1 160 78	68 0.16	10 163 26 C	1										
	29	1977	1	8	11 11 32.800E	18.105	-66.267	0.3	1.1D	8.2 334 0	11.3 244 0	>99.9 270 90	68 0.27	5 289 48 D	1										*
	30	1977	1	8	17 12 50.920	17.805	-66.928	0.2	1.9D	1.3 94 3	2.8 184 13	7.9 352 76	68 0.20	10 246 45 D	1										
	31	1977	1	8	19 53 57.330	18.160	-67.462	2.2	1.2D	12.6 342 2	8.1 252 3	>99.9 106 86	68 0.11	5 334 83 D	1										
	32	1977	1	8	22 36 43.660	18.948	-67.212	9.7	2.8D	38.5 144 11	6.2 48 27	13.4 254 60	68 0.33	10 304 86 D	1										
	33	1977	1	9	5 49 24.340	17.789	-66.763	11.3	2.9D	4.6 359 23	1.3 103 29	2.7 237 51	68 0.15	10 232 46 D	1										
	34	1977	1	9	23 53 26.560	18.523	-65.512	15.5	2.4D	9.7 324 0	>99.9 234 0	>99.9 270 89	68 0.16	5 327 73 D	1										
	35	1977	1	10	7 8 10.090	17.998	-65.576	16.4	1.2D	1.9 43 2	2.8 134 2	54.0 269 87	68 0.10	7 319 62 D	1										

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Origin time (UTC)				North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes								Rms No.				Hypo				
	Name	Index	yr	mo d h min s				a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	(s)	ob	Gap	PM	Q		auth *			
PRN77	36	1977	1	10 7 40 27.110	17.780	-66.723	16.1	1.1D	10.5	255	1	20.2	165	3	>99.9	4	86	68	0.15	5	295	59	D	1
	37	1977	1	10 12 44 58.480	18.152	-66.951	18.7	0.5D	11.6	196	8	3.5	104	11	18.9	321	76	68	0.27	6	189	30	D	1
	38	1977	1	11 14 12 56.780	18.140	-67.790	62.5	2.3D	3.3	286	18	6.4	183	36	10.1	38	48	68	0.20	12	326	78	D	1
	39	1977	1	12 6 44 2.260	18.469	-67.461	10.1	1.8D	5.6	161	3	11.6	253	29	2.7	65	60	68	0.28	9	316	64	D	1
	40	1977	1	12 7 11 11.576	17.905	-66.986	8.6	1.2D	23.6	18	3	4.1	108	18	20.9	279	71	68	0.01	5	254	36	D	1
	41	1977	1	12 15 30 47.110	18.395	-66.409	6.6	...	4.7	266	4	17.1	356	9	>99.9	152	80	68	0.15	5	222	47	D	1
	42	1977	1	12 19 32 40.660E	18.346	-66.065	0.1	1.4D	4.1	263	0	13.2	353	0	>99.9	90	90	68	0.19	5	210	27	D	1 *
	43	1977	1	13 18 39 4.200	18.698	-66.733	79.9	1.6D	1.0	86	8	4.8	178	15	2.7	329	72	68	0.06	7	243	85	D	1
	44	1977	1	13 19 14 57.150	18.111	-65.755	0.0	2.6D	2.5	16	1	10.7	286	2	6.1	133	87	68	0.30	9	274	42	D	1
	45	1977	1	13 22 26 9.880	18.514	-66.203	26.3	1.0D	11.8	43	30	51.0	153	31	6.5	279	44	68	0.11	5	258	45	D	1
	46	1977	1	14 4 26 14.110	18.189	-67.253	110.3	1.8D	3.5	216	18	5.5	322	41	1.8	107	43	68	0.10	11	251	30	D	1
	47	1977	1	14 11 35 39.620	17.956	-66.517	8.1	1.3D	1.1	96	13	2.1	191	18	4.2	333	67	68	0.13	8	194	53	C	1
	48	1977	1	15 8 53 56.580	17.961	-66.285	7.0	1.4D	0.9	261	5	4.5	356	44	2.7	165	45	68	0.24	13	196	40	D	1
	49	1977	1	15 15 36 6.850	18.088	-66.344	52.8	1.9D	32.3	316	8	16.6	222	29	39.1	60	59	68	0.03	5	327	56	D	1
	50	1977	1	15 15 49 11.660	18.092	-67.205	24.5	1.0D	3.5	318	1	5.2	49	37	10.9	227	52	68	0.14	6	248	38	D	1
	51	1977	1	17 16 00 4.380	18.115	-66.995	24.6	1.0D	5.9	197	14	2.9	101	23	10.2	315	62	68	0.18	6	155	34	D	1
	52	1977	1	17 18 55 32.590	17.945	-66.297	1.9	2.1D	0.9	266	1	2.9	176	3	62.5	15	86	68	0.11	8	199	41	D	1
	53	1977	1	18 4 19 20.240	18.168	-66.167	17.0	1.3D	2.0	353	0	2.2	83	14	2.6	263	76	68	0.26	11	94	30	C	1
	54	1977	1	18 20 6 58.380	18.222	-67.273	9.5	1.4D	9.3	59	4	23.9	150	9	35.1	306	80	68	0.19	5	313	65	D	1
	55	1977	1	18 21 15 0.850	17.977	-66.266	17.8	0.8D	4.5	262	12	11.0	163	35	57.7	8	52	68	...	5	202	41	D	1
	56	1977	1	18 23 15 45.810	18.103	-66.954	18.8	0.6D	5.0	99	9	8.0	6	17	38.8	215	70	68	0.04	5	134	29	D	1
	57	1977	1	20 17 45 14.960	18.299	-65.887	11.6	2.2D	7.8	356	4	12.2	89	35	5.3	186	66	68	0.36	8	139	29	D	1
	58	1977	1	20 19 16 36.020	18.304	-66.868	4.9	1.3D	1.4	85	5	3.6	353	23	5.3	186	66	68	0.17	8	155	33	C	1
	59	1977	1	20 21 28 49.230E	18.119	-66.482	0.8	1.3D	0.4	89	1	1.2	179	2	20.5	333	87	68	0.33	10	154	35	C	1 *
	60	1977	1	20 22 39 45.420	18.270	-66.041	5.7	1.1D	0.9	260	3	4.3	169	24	11.7	356	65	68	0.15	8	156	29	C	1
	61	1977	1	21 00 1 7.970	18.823	-67.249	26.2	2.1D	14.1	142	10	3.6	44	38	5.4	244	50	68	0.21	10	302	92	D	1
	62	1977	1	21 3 32 34.010	18.729	-66.259	60.4	2.9D	1.5	280	6	5.7	188	14	8.1	33	74	68	0.14	12	249	62	D	1
	63	1977	1	21 4 2 5.950	17.948	-66.293	12.2	1.0D	1.3	91	8	5.0	357	27	3.9	196	61	68	0.19	9	210	40	D	1
	64	1977	1	21 4 58 36.470	17.804	-66.800	0.2	1.0D	2.3	90	9	5.3	186	33	13.7	347	55	68	0.17	7	243	47	D	1
	65	1977	1	21 16 52 16.840	18.083	-67.019	11.9	0.8D	2.1	347	6	1.6	79	19	5.8	241	70	68	0.19	8	128	36	C	1
	66	1977	1	21 22 41 54.250	18.000	-65.846	9.2	1.3D	8.9	307	1	4.5	37	10	3.4	212	79	68	0.18	7	278	34	D	1
	67	1977	1	22 6 54 14.900	18.611	-67.300	104.1	1.9D	10.0	175	19	4.3	75	26	40.2	296	56	68	0.11	7	301	70	D	1
	68	1977	1	22 12 36 47.770	18.553	-65.490	15.3	2.9D	5.2	331	3	24.8	63	30	63.9	236	59	68	0.20	10	313	76	D	1
	69	1977	1	22 22 19 47.230	17.760	-66.767	13.5	1.4D	0.5	248	10	1.7	343	26	1.1	138	61	68	0.02	6	294	50	C	1
	70	1977	1	24 00 19 21.840	17.922	-65.744	12.3	1.4D	5.2	21	7	4.5	290	12	2.1	141	76	68	0.21	9	296	60	D	1
	71	1977	1	24 1 48 26.140	17.907	-65.774	9.4	1.3D	6.0	83	26	7.6	336	31	3.2	205	47	68	0.17	7	293	58	D	1
	72	1977	1	24 6 21 55.090	17.716	-66.752	9.9	1.1D	6.4	250	4	12.5	159	16	>99.9	353	73	68	0.11	5	301	62	D	1
	73	1977	1	24 21 49 2.330	18.447	-67.442	9.0	1.4D	4.7	43	4	12.5	134	21	3.6	303	68	68	0.31	11	307	61	D	1
	74	1977	1	25 20 46 26.240	18.845	-65.857	11.9	2.3D	29.0	213	4	3.5	306	43	7.4	118	46	68	0.15	7	291	87	D	1
	75	1977	1	25 22 6 25.160	19.144	-65.922	18.1	2.1D	10.1	36	3	6.0	304	38	24.7	130	51	68	0.19	7	323	...	D	1
	76	1977	1	25 22 51 21.360	18.772	-65.804	73.0	1.7D	43.9	193	24	15.3	84	35	6.9	309	45	68	0.27	7	304	82	D	1
	77	1977	1	26 2 32 17.070	17.842	-66.799	3.0	1.2D	0.6	96	1	1.9	187	4	23.6	353	85	68	0.05	7	224	43	D	1
	78	1977	1	26 2 59 46.540	17.900	-66.221	13.3	0.7D	2.0	274	1	7.9	4	3	3.9	165	86	68	0.17	7	243	44	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	M	Error ellipsoid axes						Rms No.		Hypo auth *			
	yr	mo	d h min s					a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	(s)		ob Cap DM		
PRN77	79	1977	1 26 8 56 37.930	19.192	-66.466	7.3	1.9D	2.3	272	0	13.7	2	0	>99.9	90 90 68 0.13	9 289	..	D	1
	80	1977	1 28 14 41 32.860	18.448	-65.926	10.9	1.9D	4.9	283	13	19.9	16	14	13.0	151 70 68 0.03	5 277	45	D	1
	81	1977	1 29 11 22 44.630	17.960	-66.527	12.7	1.1D	6.8	252	27	23.3	5	37	4.5	135 40 68 0.04	5 210	64	D	1
	82	1977	1 30 11 18 22.640	18.035	-67.143	16.1	0.7D	1.0	354	3	2.5	261	40	1.5	88 49 68 0.04	6 263	49	D	1
	83	1977	1 30 17 6 17.380	18.457	-66.535	90.6	1.7D	6.5	3	0	2.3	93	3	3.7	273 87 68 0.22	14 193	44	D	1
	84	1977	2 1 4 21 33.200E	18.034	-67.142	0.5	0.6D	18.5	59	2	3.8	329	3	>99.9	182 86 68 0.17	5 247	43	D	1 *
	85	1977	2 1 6 00 48.660	19.019	-65.440	4.6	2.8D	13.0	241	2	7.5	149	39	4.2	333 50 68 0.25	11 315	..	D	1
	86	1977	2 2 10 26 39.250	18.111	-67.447	11.8	1.1D	6.6	165	5	11.7	71	41	3.8	260 48 68 0.19	6 299	49	D	1
	87	1977	2 2 14 28 52.460	18.462	-65.890	9.7	1.4D	7.7	272	0	20.3	2	1	45.1	182 89 68	5 297	47	D	1
	88	1977	2 3 14 16 38.460	17.951	-66.302	6.6	1.2D	1.1	269	0	3.3	359	1	20.5	178 89 68 0.14	8 210	42	D	1
	89	1977	2 3 18 3 38.100	18.306	-66.853	15.6	...	4.4	115	21	14.1	12	31	6.3	233 51 68 0.05	5 183	31	D	1
	90	1977	2 4 12 26 11.350	18.125	-67.259	20.8	...	8.3	346	1	19.4	77	33	11.9	255 56 68 0.27	5 260	36	D	1
	91	1977	2 4 20 14 11.080	18.098	-66.484		1.1D	1.4	266	0	4.7	356	0	>99.9	90 90 68 0.27	9 171	35	C	1
	92	1977	2 4 20 40 36.060	17.967	-66.664	38.9	0.6D	8.8	252	23	28.8	353	25	43.8	124 54 68 0.04	5 257	45	D	1
	93	1977	2 5 1 53 58.850	18.195	-67.254	14.2	...	6.8	348	6	17.9	82	33	9.3	249 56 68 0.01	5 252	29	D	1
	94	1977	2 5 8 6 24.510	18.266	-67.175	22.9	1.1D	3.0	1	1	10.3	270	29	2.6	93 60 68 0.26	11 220	30	D	1
	95	1977	2 5 9 24 10.760	18.696	-67.448	11.9	2.0D	3.8	186	18	5.8	89	20	2.7	314 62 68 0.23	12 311	80	D	1
	96	1977	2 5 14 11 7.230	18.668	-66.726	15.9	1.8D	0.9	89	1	2.1	359	13	8.7	183 76 68 0.19	17 238	66	D	1
	97	1977	2 5 20 50 59.320	18.010	-66.858	9.7	0.6D	0.4	260	7	1.2	352	16	2.8	147 72 68 0.03	6 196	51	C	1
	98	1977	2 6 2 47 6.300	18.715	-67.490	8.2	2.0D	3.5	94	3	5.7	186	24	2.1	358 65 68 0.19	12 313	85	D	1
	99	1977	2 6 15 38 16.720	18.190	-67.093	16.9	0.6D	19.5	263	7	6.3	355	16	8.7	150 72 68 0.08	5 177	25	D	1
	100	1977	2 6 22 1 12.880	17.985	-66.403	23.4	1.0D	1.2	95	3	3.0	186	25	7.9	359 64 68 0.15	10 209	38	D	1
	101	1977	2 6 23 50 44.530	18.426	-67.437	74.2	1.7D	3.4	2	3	2.1	95	41	2.6	260 48 68 0.10	12 295	45	D	1
	102	1977	2 7 1 15 11.540	18.188	-67.299	31.5	2.0D	30.2	272	30	6.2	159	34	3.8	33 41 68 0.18	9 292	67	D	1
	103	1977	2 7 6 37 14.590	18.675	-65.403	19.5	2.3D	>99.9	230	13	17.4	131	35	7.7	337 52 68 0.23	8 325	90	D	1
	104	1977	2 8 00 48 33.390	18.612	-67.425	20.2	1.4D	4.9	317	2	5.1	227	5	13.9	69 84 68 0.15	7 307	57	D	1
	105	1977	2 8 21 54 40.080	18.410	-67.383	23.2	1.3D	2.8	342	2	4.3	250	39	11.7	75 50 68 0.13	7 303	54	D	1
	106	1977	2 12 1 53 10.500	18.099	-67.073	22.1	1.1D	5.8	343	21	3.2	82	22	13.5	214 58 68 0.32	8 162	36	D	1
	107	1977	2 12 22 23 3.930	18.242	-66.618	15.1	1.5D	1.4	164	6	2.8	259	40	0.6	66 49 68 0.17	14 135	27	C	1
	108	1977	2 13 6 18 52.980	17.928	-65.842	16.9	1.1D	5.7	316	12	11.7	51	23	3.5	201 63 68 0.21	8 311	52	D	1
	109	1977	2 13 8 29 1.190	17.783	-66.750	0.1	1.1D	1.8	89	1	3.7	180	3	13.3	341 86 68 0.26	11 232	46	D	1
	110	1977	2 14 5 3 54.600	18.142	-67.414	48.2	1.3D	2.9	91	2	6.5	181	15	3.8	354 74 68 0.13	9 330	78	D	1
	111	1977	2 14 5 28 26.740	18.067	-67.114	11.7	1.3D	1.6	337	23	2.4	108	40	5.2	246 41 68 0.12	7 203	39	D	1
	112	1977	2 14 17 46 29.230	18.040	-67.150	18.5	1.1D	8.9	351	29	15.6	104	35	19.9	232 41 68	5 265	49	D	1
	113	1977	2 16 1 4 13.160	18.039	-65.508	12.2	1.8D	2.2	25	5	2.4	293	18	1.5	130 71 68 0.12	8 322	68	D	1
	114	1977	2 16 8 20 6.400	17.910	-67.072	10.1	1.3D	3.7	28	16	2.1	123	18	11.2	259 65 68 0.09	6 282	44	D	1
	115	1977	2 16 11 49 3.230	17.981	-67.420	37.4	2.9D	1.8	125	14	7.8	220	23	5.9	5 62 68 0.14	11 264	45	D	1
	116	1977	2 16 12 13 16.320	18.010	-67.403	38.3	2.4D	2.3	128	15	9.0	231	41	5.3	22 45 68 0.15	11 259	43	D	1
	117	1977	2 17 11 19 3.980	18.333	-65.891	48.5	2.8D	2.6	281	25	10.1	153	33	14.1	21 46 68 0.08	6 239	33	D	1
	118	1977	2 17 16 52 6.330E	18.407	-66.024	0.2	1.1D	9.0	346	0	32.0	256	1	>99.9	76 88 68 0.22	5 315	65	D	1 *
	119	1977	2 19 00 4 47.910	17.744	-66.781	5.5	1.1D	2.0	239	4	4.9	148	7	44.0	358 81 68 0.13	6 289	52	D	1
	120	1977	2 19 7 53 39.190	17.688	-67.838	5.0	3.5D	8.4	342	9	43.7	74	16	1.9	224 71 68 0.10	9 336	..	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Name Index	Origin time (UTC)					North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.			Hypo								
		yr	mo	d	h	m				s	a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	ob		Cap	DM	Q	auth *				
PRN77	121	1977	2	19	10	48	44.790	18.754	-65.572	16.5	3.30	2.0	319	5	14.6	228	10	7.5	76	78	68	0.07	8	310	94	D	1
	122	1977	2	19	14	11	37.540	18.736	-65.476	17.1	2.10	26.3	313	1	>99.9	43	28	>99.9	222	61	68	0.04	5	336	90	D	1
	123	1977	2	19	15	8	27.360	18.995	-65.245	7.8	2.20	42.3	318	8	>99.9	223	35	>99.9	60	53	68	0.03	5	343	..	D	1
	124	1977	2	19	23	8	18.010	18.559	-65.633	23.8	2.40	18.3	225	3	1.6	318	40	2.6	131	49	68	0.03	6	320	65	D	1
	125	1977	2	20	10	4	47.960	18.409	-66.029	67.6	1.40	13.9	174	20	8.0	274	23	11.3	47	58	68	0.31	8	243	35	D	1
	126	1977	2	20	23	59	46.980	18.364	-66.210	20.0	1.70	6.1	275	13	>99.9	10	21	14.5	155	64	68	0.28	4	257	48	D	1
	127	1977	2	21	5	19	15.110	17.987	-66.880	9.6	0.90	1.1	83	5	5.6	352	12	3.1	195	76	68	0.16	8	207	30	D	1
	128	1977	2	21	6	18	3.760	18.146	-66.306	18.5	1.20	0.7	264	4	2.0	355	4	3.0	129	84	68	0.09	8	150	30	C	1
	129	1977	2	21	10	8	31.130	18.490	-66.474	117.3	2.10	1.9	86	5	7.4	177	13	4.1	336	76	68	0.12	11	204	45	D	1
	130	1977	2	23	3	21	5.170	18.013	-65.793	9.6	1.70	1.5	50	8	2.6	316	26	4.8	156	62	68	0.12	10	290	39	D	1
	131	1977	2	23	6	47	1.940	18.051	-65.540	13.1	1.40	2.6	70	1	2.1	339	32	1.2	162	57	68	0.13	9	319	65	D	1
	132	1977	2	23	13	32	13.770	19.951	-64.336	80.7	2.80	>99.9	312	3	>99.9	42	9	>99.9	204	80	58	0.13	5	349	..	D	1
	133	1977	2	25	2	31	54.370	18.438	-66.087	19.2	1.70	9.3	76	7	>99.9	340	40	18.1	175	49	68	0.13	4	278	37	D	1
	134	1977	2	25	5	7	10.830	18.681	-65.513	13.9	2.30	5.0	319	1	39.3	49	25	>99.9	227	64	68	0.14	8	319	83	D	1
	135	1977	2	25	5	18	36.510	18.988	-65.163	3.7	2.30	1.4	321	5	0.5	228	31	3.3	60	58	68	0.12	7	339	..	C	1
	136	1977	2	25	15	21	48.700	17.920	-66.653	22.0	1.00	2.4	109	27	5.4	219	34	14.4	350	43	68	0.16	7	280	38	D	1
	137	1977	2	25	22	59	7.410	18.177	-66.494	94.4	1.50	10.3	3	3	4.1	94	25	11.1	267	64	68	0.12	8	145	21	D	1
	138	1977	2	25	23	11	3.390	18.165	-65.977	77.6	1.20	10.5	148	12	7.3	54	21	5.4	266	65	68	0.21	8	119	20	C	1
	139	1977	2	26	00	53	21.020	17.698	-65.978	11.0	1.30	6.7	350	10	3.0	255	29	2.0	98	59	68	0.07	6	308	55	D	1
	140	1977	2	27	3	38	33.990	18.831	-66.844	25.8	1.80	2.2	227	6	2.7	134	20	33.2	332	68	68	0.15	10	280	94	D	1
	141	1977	2	27	12	7	10.260	19.012	-65.373	4.4	3.00	17.2	76	4	9.8	168	34	4.8	341	55	68	0.32	13	318	..	D	1
	142	1977	3	2	21	9	0.140	17.960	-66.410	9.8	2.10	1.1	262	20	4.7	4	30	2.6	143	52	68	0.22	14	194	31	D	1
	143	1977	3	3	4	16	9.260	18.193	-66.084	35.0	1.10	1.5	281	3	2.1	191	9	2.8	30	80	68	0.13	10	96	25	C	1
	144	1977	3	3	8	41	46.840	18.989	-67.204	11.5	2.10	2.0	238	0	4.7	148	39	16.5	327	51	68	0.14	13	304	91	D	1
	145	1977	3	3	18	37	57.490E	18.299	-66.858	0.3	1.40	1.0	272	2	1.9	2	2	10.8	137	87	68	0.35	14	101	28	C	1
	146	1977	3	7	6	25	54.530	18.674	-66.289	31.5	1.40	2.2	271	10	2.4	4	16	7.9	150	70	68	0.09	8	309	64	D	1
	147	1977	3	9	6	18	4.080	18.146	-66.016	18.0	1.40	1.9	298	3	2.5	29	4	6.4	171	84	68	0.21	9	117	22	C	1
	148	1977	3	10	1	35	30.480	18.284	-66.392	40.3	1.20	2.7	30	31	4.2	276	35	8.8	151	39	68	0.14	8	284	32	D	1
	149	1977	3	10	4	38	56.960	19.012	-65.152	7.1	2.10	16.8	314	10	6.7	218	31	39.5	60	57	68	0.20	8	344	..	D	1
	150	1977	3	13	8	43	32.770	18.683	-65.668	21.7	2.80	34.2	213	20	4.2	317	34	11.4	98	49	68	0.17	9	303	76	D	1
	151	1977	3	13	8	46	47.790	18.963	-65.489	8.7	3.30	3.1	320	7	16.0	57	41	38.3	223	48	68	0.15	13	311	..	D	1
	152	1977	3	13	12	29	12.820	19.053	-65.336	5.6	2.60	18.0	311	4	11.9	219	31	80.6	48	58	68	0.23	7	336	..	D	1
	153	1977	3	13	18	31	31.900	18.039	-65.525	9.9	1.40	6.9	183	11	4.4	281	36	2.3	78	51	68	0.17	8	321	67	D	1
	154	1977	3	14	7	14	38.560	18.508	-67.368	12.4	1.60	17.5	162	1	7.3	254	44	3.1	70	45	68	0.33	10	239	62	D	1
	155	1977	3	15	1	23	55.090	18.291	-67.427	84.8	1.70	6.2	7	17	2.7	109	34	3.9	255	50	68	0.18	13	201	48	D	1
	156	1977	3	15	1	44	27.600	18.802	-66.177	32.5	1.50	1.3	281	9	2.6	13	12	9.4	155	74	68	0.08	10	296	76	D	1
	157	1977	3	15	5	35	55.690	18.661	-66.924	15.9	...	1.3	349	0	2.1	259	0	>99.9	270	89	68	0.06	7	318	91	D	1
	158	1977	3	16	18	21	53.850	18.102	-66.460	14.7	0.60	1.7	275	4	5.6	182	36	8.9	11	53	68	0.12	6	164	24	D	1
	159	1977	3	19	8	45	12.330	18.548	-65.418	13.2	2.90	4.7	330	4	65.4	237	43	16.6	65	46	68	0.14	9	326	83	D	1
	160	1977	3	21	00	27	10.850	17.927	-66.719	12.4	1.30	3.0	358	27	0.9	106	31	2.1	236	46	68	0.13	12	201	40	D	1
	161	1977	3	21	1	48	42.940	18.872	-66.354	46.3	1.70	3.1	283	12	4.1	17	18	16.2	161	68	68	0.13	9	300	87	D	1
	162	1977	3	22	14	49	47.910	19.057	-66.014	27.5	2.40	6.8	283	0	36.5	13	0	>99.9	90	90	68	0.20	7	300	..	D	1
	163	1977	3	22	21	4	34.480	18.033	-67.109	5.4	1.80	1.6	354	26	18.1	250	28	2.8	121	50	68	0.10	6	217	43	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	M	Error ellipsoid axes						Rms No.		Hypo Q	auth *							
		yr	mo	d h min s					a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl	%	ob			Gap						
PPN77	164	1977	3	23 15 54.50.480	17.832	-66.604	7.4	1.30	1.0	94	9	1.9	189	32	3.6	351	56	68	0.13	12	250	39	C	1	*
	165	1977	3	23 17 5 8.970E	18.326	-66.136	0.1	0.60	4.9	240	0	29.2	330	3	>99.9	149	87	68	0.20	5	239	28	D	1	*
	166	1977	3	24 16 41 1.110	17.904	-67.010	2.1	1.80	1.5	116	12	4.3	215	39	7.1	12	48	68	0.29	11	234	47	D	1	*
	167	1977	3	24 20 11 52.900	18.854	-66.321	48.1	1.60	2.1	281	7	3.1	13	23	11.4	175	65	68	0.16	12	298	80	D	1	*
	168	1977	3	25 3 36 37.780	19.304	-65.528	2.0	2.50	5.9	295	19	2.4	194	29	27.0	54	54	68	0.18	8	323	..	D	1	*
	169	1977	3	25 5 51 28.160	18.068	-65.543	13.1	1.30	2.3	29	15	3.3	292	25	1.5	148	60	68	0.09	7	318	64	D	1	*
	170	1977	3	25 20 00 58.900	18.221	-66.129	7.7	0.50	2.9	179	9	5.9	88	11	9.5	307	75	68	0.28	7	108	27	C	1	*
	171	1977	3	25 20 3 7.300	18.073	-66.490	10.4	0.80	1.3	99	1	3.1	9	9	4.0	195	80	68	0.17	9	172	21	C	1	*
	172	1977	3	27 3 5 57.420	18.301	-66.150	59.9	1.20	4.0	5	5	2.5	273	19	3.2	110	70	68	0.17	12	183	23	D	1	*
	173	1977	4	1 8 6 46.540	18.182	-66.149	63.3	1.20	15.1	140	22	3.5	242	26	8.2	15	54	68	0.10	6	120	22	C	1	*
	174	1977	4	1 9 5 29.560	18.493	-66.432	44.4	1.40	15.5	53	4	70.8	145	26	29.1	315	63	68	0.05	5	302	52	D	1	*
	175	1977	4	1 17 6 14.050E	18.351	-66.152	0.0	0.90	3.8	231	0	11.8	321	0	>99.9	90	90	68	0.23	5	248	30	D	1	*
	176	1977	4	1 23 2 18.320	17.661	-65.719	4.2	1.70	22.2	236	2	>99.9	146	8	>99.9	339	81	68	0.08	5	318	74	D	1	*
	177	1977	4	1 23 5 0.690	18.789	-66.379	57.5	1.90	1.1	284	7	2.9	16	20	8.0	175	68	68	0.10	12	253	71	D	1	*
	178	1977	4	2 3 56 0.090	17.998	-65.542	13.2	1.30	3.2	220	6	4.4	312	14	1.8	107	74	68	0.12	8	321	66	D	1	*
	179	1977	4	2 8 41 16.120	18.008	-66.662	32.3	0.90	1.8	355	11	0.8	92	33	6.8	250	54	68	0.02	6	259	36	D	1	*
	180	1977	4	2 10 59 26.010	18.104	-66.094	29.2	1.10	1.0	280	0	1.3	10	23	2.0	190	67	68	0.09	10	150	22	C	1	*
	181	1977	4	5 13 21 41.750	18.825	-65.318	3.3	3.00	4.8	330	8	18.8	67	40	55.9	231	48	68	0.18	10	319	..	D	1	*
	182	1977	4	7 11 51 23.030	18.786	-65.567	30.4	1.90	4.5	291	4	3.2	21	7	18.8	171	81	68	0.19	11	327	91	D	1	*
	183	1977	4	7 22 39 14.780	17.939	-66.261	8.9	2.40	1.1	272	3	2.8	180	31	5.6	7	58	68	0.19	13	202	38	D	1	*
	184	1977	4	7 22 43 16.440	17.921	-66.249	12.3	0.50	7.1	357	4	2.4	90	36	3.6	262	53	68	0.06	6	266	38	D	1	*
	185	1977	4	7 22 45 46.280	17.918	-66.254	8.5	0.70	1.3	102	4	2.4	193	19	8.5	0	70	68	0.06	6	266	38	D	1	*
	186	1977	4	8 2 6 23.280	17.914	-66.258	7.3	0.50	5.9	94	1	12.7	185	15	87.5	0	74	68	0.01	5	268	39	D	1	*
	187	1977	4	8 4 15 33.500	18.685	-65.411	69.3	2.00	3.9	306	17	2.5	46	30	8.8	191	54	68	0.16	12	331	90	D	1	*
	188	1977	4	8 9 37 29.500	17.952	-66.252	11.3	1.00	1.8	100	4	3.8	191	9	7.7	347	80	68	0.21	9	254	37	D	1	*
	189	1977	4	8 10 13 0.020	17.935	-66.251	13.0	1.10	0.8	263	1	2.3	353	22	1.6	170	67	68	0.13	11	215	37	C	1	*
	190	1977	4	9 16 18 4.410	18.759	-66.390	12.6	1.40	2.0	321	4	3.1	229	26	0.9	60	63	68	0.05	7	337	74	D	1	*
	191	1977	4	10 9 19 34.010	17.929	-66.251	11.0	0.90	0.8	94	11	1.7	188	22	3.7	340	65	68	0.08	9	262	38	C	1	*
	192	1977	4	10 9 20 4.840	17.927	-66.252	9.1	1.10	0.6	103	11	1.4	196	20	3.1	346	67	68	0.05	8	263	38	C	1	*
	193	1977	4	10 9 51 37.710	17.927	-66.249	9.8	0.70	0.9	85	3	1.7	176	24	4.6	349	65	68	0.10	10	217	37	C	1	*
	194	1977	4	14 19 00 35.870	18.707	-66.394	60.2	2.10	2.1	99	2	4.2	7	41	10.4	191	48	68	0.18	12	259	53	D	1	*
	195	1977	4	16 7 9 20.760	18.745	-65.241	68.0	2.10	6.0	142	4	1.9	49	40	7.1	236	49	68	0.12	11	329	..	D	1	*
	196	1977	4	20 23 54 19.450	17.937	-66.165	14.4	0.80	0.6	280	0	1.7	10	25	1.2	100	65	68	0.10	12	233	29	C	1	*
	197	1977	4	23 19 2 38.580E	18.298	-66.199	0.2	2.20	2.20	1	0	2.0	9	0	69.6	90	90	68	0.16	10	161	21	C	1	*
	198	1977	4	25 20 56 4.410	18.605	-66.334	49.8	2.90	2.5	103	4	6.2	194	16	12.3	0	73	68	0.14	9	235	45	D	1	*
	199	1977	4	26 20 45 18.820	18.331	-66.142	2.5	1.70	1.1	281	4	1.8	12	20	4.8	181	69	68	0.18	6	198	24	C	1	*
	200	1977	4	27 13 13 41.310	18.604	-66.185	14.0	2.90	10.2	175	4	1.6	268	26	2.3	76	63	68	0.10	7	273	47	D	1	*
	201	1977	4	28 23 34 58.060	18.516	-67.368	6.6	2.50	7.0	179	29	4.4	290	32	2.2	56	43	68	0.34	18	236	48	D	1	*
	202	1977	4	29 21 28 21.430	18.197	-66.099	65.6	1.40	20.3	347	16	5.6	246	33	13.2	99	52	68	0.25	7	108	27	C	1	*
	203	1977	4	30 11 51 21.610	18.531	-67.193	14.8	2.50	6.8	173	11	2.3	73	44	5.1	73	44	68	0.33	14	217	41	D	1	*
	204	1977	5	2 2 44 17.570	18.115	-65.940	59.6	3.00	2.9	5	7	1.6	272	26	7.0	109	62	68	0.07	8	144	23	C	1	*
	205	1977	5	2 16 00 56.360	19.113	-67.404	18.4	4.50	2.2	72	15	11.3	168	19	5.0	307	65	68	0.20	15	273	..	D	1	*
	206	1977	5	4 10 1 22.110	19.223	-67.450	15.7	3.20	2.9	81	16	6.5	181	31	15.3	328	54	68	0.20	12	280	..	D	1	*

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog		Origin time (UTC)					North		East		Focal	Error ellipsoid axes						Rms No.		Hypo								
Name	Index	yr	mo	d	h	min	s	latitude (deg)	longitude (deg)	depth (km)	M	a (km)	Tr pl	b (km)	Tr pl	c (km)	Tr pl	%	ob	Gap	DM	Q	auth	*				
PRN77	207	1977	5	7	19	24	47.150	17.994	-66.738	8.3	2.00	0.8	92	7	1.5	189	44	2.3	355	45	68	0.20	22	186	35	C	1	
	208	1977	5	8	13	43	54.640	17.839	-66.837	9.2	1.80	4.7	4	21	1.3	105	26	2.3	241	55	68	0.20	13	247	45	D	1	
	209	1977	5	9	4	46	38.840	18.020	-66.762	11.1	1.10	11.2	303	9	5.5	36	22	2.8	193	66	68	0.23	8	327	46	D	1	
	210	1977	5	9	6	59	59.020	17.940	-66.733	8.4	1.20	4.9	258	14	7.9	5	40	2.0	156	46	68	0.25	11	299	45	D	1	
	211	1977	5	9	8	4	11.630	17.892	-66.021	9.0	1.70	0.9	258	6	2.2	167	8	4.7	25	79	68	0.09	10	250	38	C	1	
	212	1977	5	9	8	53	17.950	17.799	-66.787	2.1	1.60	1.1	1	98	3	2.4	189	11	5.2	353	78	68	0.20	15	232	47	D	1
	213	1977	5	9	11	28	43.140	17.899	-66.031	6.0	1.60	1.6	259	7	6.7	168	7	14.0	34	80	68	0.09	6	263	37	D	1	
	214	1977	5	9	11	30	34.350	17.894	-66.025	4.4	1.30	1.6	64	1	2.7	154	9	35.1	328	80	68	0.11	7	282	46	D	1	
	215	1977	5	10	1	22	37.150	18.156	-66.124	81.5	1.30	8.6	352	14	5.2	91	31	4.1	241	55	68	0.23	11	89	23	C	1	
	216	1977	5	10	5	14	24.650	18.569	-66.576	83.5	1.90	2.2	89	3	8.1	180	31	3.5	355	58	68	0.08	8	240	54	D	1	
	217	1977	5	10	6	13	31.240	17.981	-66.598	14.2	2.30	4.7	359	15	1.5	96	26	2.0	242	59	68	0.24	13	188	30	D	1	
	218	1977	5	10	20	13	47.350	18.102	-66.496	9.2	0.80	3.2	89	1	16.2	358	3	25.7	197	86	68	0.26	6	155	20	D	1	
	219	1977	5	13	00	55	38.700	18.419	-66.769	13.0	1.90	1.8	189	1	1.0	99	18	1.3	282	71	68	0.22	18	134	33	B	1	
	220	1977	5	13	9	51	17.740	19.028	-65.116	20.0	2.50	58.2	135	4	>99.9	9	225	11	44.2	25	78	68	0.09	4	344	..	D	1
	221	1977	5	14	19	13	44.290	18.006	-65.629	12.9	1.10	11.4	283	5	9.2	15	19	5.9	178	70	68	0.30	6	314	56	D	1	
	222	1977	5	20	16	54	55.210	18.426	-66.069	89.0	1.40	64.6	180	5	29.7	88	22	16.3	282	67	68	0.12	5	270	46	D	1	
	223	1977	5	22	2	55	0.700	18.155	-66.693	54.3	2.50	0.6	96	9	1.7	0	33	2.3	199	55	68	0.06	13	82	28	B	1	
	224	1977	5	23	22	47	24.880	18.695	-65.654	67.2	1.90	7.8	273	4	7.3	181	37	2.6	9	52	68	0.10	7	331	78	D	1	
	225	1977	5	26	2	7	22.610	18.698	-66.119	76.6	1.50	8.2	169	19	3.7	268	26	4.7	46	57	68	0.06	6	311	73	D	1	
	226	1977	5	26	15	55	16.080	19.161	-66.399	18.3	2.20	2.3	301	0	3.1	31	11	4.2	211	79	68	0.14	11	305	..	D	1	
	227	1977	5	27	17	40	42.520	18.978	-66.750	31.5	2.10	2.6	95	1	6.8	5	8	28.3	192	81	68	0.27	15	259	87	D	1	
	228	1977	5	29	10	31	58.240	18.664	-66.875	17.2	1.30	1.8	259	0	2.0	349	2	59.5	168	88	68	0.06	10	315	70	D	1	
	229	1977	5	29	16	19	2.550	18.010	-65.564	7.6	1.50	>99.9	9	296	12	23.6	36	40	10.6	193	47	68	..	4	319	63	D	1
	230	1977	5	29	22	30	58.500	17.917	-65.833	13.6	0.80	4.3	331	17	1.9	68	21	0.9	206	62	68	0.05	6	293	44	D	1	
	231	1977	5	31	7	11	2.930	18.443	-67.573	6.6	2.80	11.0	335	4	3.1	67	19	4.0	234	70	68	0.23	11	225	89	D	1	
	232	1977	6	1	21	36	54.900	17.467	-67.572	21.8	2.40	1.2	119	18	6.1	18	29	4.0	236	54	68	0.13	11	263	94	D	1	
	233	1977	6	3	00	50	29.830	17.980	-66.408	13.0	1.50	4.0	359	0	1.4	89	16	2.4	269	74	68	0.18	10	204	30	D	1	
	234	1977	6	3	18	41	31.330	17.986	-67.307	1.4	2.50	0.6	85	1	1.5	176	25	2.0	353	64	68	0.10	8	197	65	C	1	
	235	1977	6	4	18	54	53.420	18.336	-65.715	15.9	3.40	3.6	137	1	13.2	47	15	5.8	230	74	68	0.18	9	308	52	D	1	
	236	1977	6	4	22	49	35.350	18.606	-65.230	25.8	3.20	8.2	15	5	5.7	107	16	4.0	269	73	68	0.10	7	325	..	D	1	
	237	1977	6	7	8	42	19.870	18.512	-68.005	25.5	2.90	10.6	129	1	3.5	39	38	77.8	220	51	68	0.09	4	304	..	D	1	
	238	1977	6	7	16	7	22.600	18.788	-68.868	33.6	3.50	9.2	274	2	52.1	4	2	>99.9	9	139	87	68	0.26	7	347	..	D	1
	239	1977	6	7	23	28	13.720	18.984	-65.815	27.5	2.40	1.4	339	0	1.9	249	0	>99.9	9	270	89	68	0.06	9	322	97	D	1
	240	1977	6	8	16	21	30.790	18.446	-67.338	40.9	2.20	8.2	352	9	1.1	85	14	1.7	231	73	68	0.08	7	211	71	D	1	
	241	1977	6	8	23	29	20.040	18.885	-65.493	18.5	2.70	2.5	273	4	2.0	4	19	4.3	171	70	68	0.08	9	312	..	D	1	
	242	1977	6	9	7	42	18.940	18.372	-67.710	51.0	2.60	0.9	71	29	2.8	183	34	5.0	311	42	68	0.11	13	229	64	D	1	
	243	1977	6	10	2	29	9.160	19.223	-67.523	41.7	2.80	2.9	46	10	9.0	313	12	29.4	175	74	68	0.17	8	303	..	D	1	
	244	1977	6	10	9	11	36.700	18.435	-65.654	51.7	1.90	3.6	80	3	2.7	172	33	1.7	346	56	68	0.06	8	315	55	D	1	
	245	1977	6	12	1	36	6.220	18.576	-65.690	22.0	2.80	2.1	282	7	2.7	18	41	7.6	185	48	68	0.09	8	306	64	D	1	
	246	1977	6	12	3	19	39.730	18.783	-65.550	10.0	2.50	3.3	26	6	6.6	118	23	1.9	283	66	68	0.05	6	324	98	D	1	
	247	1977	6	12	14	34	22.620	18.744	-65.344	22.1	2.60	1.0	234	3	4.0	324	3	1.2	98	85	68	0.05	8	349	..	D	1	
	248	1977	6	12	14	54	34.460	18.716	-65.569	17.6	2.70	3.5	49	15	4.2	308	33	16.4	160	52	68	0.07	6	324	91	D	1	
	249	1977	6	12	19	27	54.840	18.955	-65.351	3.7	3.30	5.8	81	12	6.5	178	29	1.9	332	58	68	0.10	9	323	..	D	1	

Table 8.—Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)						North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes										Rms No. (s) ob	Hypo							
	yr	mo	d	h	m	s				M	a (km)	Tr P1	b (km)	Tr P1	c (km)	Tr P1	%	Gap	DM			O	auth					
PRH77	250	1977	6	12	19	29	44.110	18.764	-65.580	17.0	2.70	3.5	265	21	2.2	4	22	18.2	135	58	68	0.05	6	313	..	D	1	*
	251	1977	6	12	19	32	53.080	18.852	-65.320	6.4	3.20	6.8	65	9	10.7	159	25	2.8	317	63	68	0.17	9	328	..	D	1	*
	252	1977	6	12	19	50	45.230	18.399	-65.828	15.5	2.70	16.5	7	1	10.6	97	27	2.5	276	62	68	0.02	5	313	47	D	1	*
	253	1977	6	12	19	56	11.850	18.289	-65.241	16.5	2.50	2.3	258	0	6.2	168	1	>99.9	347	88	68	0.09	7	346	98	D	1	*
	254	1977	6	13	17	00	54.370E	18.232	-65.831	0.6	2.50	1.0	190	1	2.8	280	1	40.9	54	88	68	0.12	7	274	35	D	1	*
	255	1977	6	13	17	30	40.420	18.168	-67.149	34.0	2.50	1.9	105	15	4.1	11	16	7.1	236	67	68	0.22	12	144	35	C	1	*
	256	1977	6	14	7	55	19.950	18.873	-65.333	11.0	2.60	4.5	310	3	2.4	218	32	>99.9	45	57	68	0.09	7	335	..	D	1	*
	257	1977	6	17	4	17	34.840	18.310	-65.794	27.0	2.60	3.2	64	15	1.8	320	43	2.6	169	43	68	0.12	9	294	38	D	1	*
	258	1977	6	18	12	26	43.300	18.681	-66.524	25.5	2.20	1.1	76	23	2.0	330	33	3.0	194	47	68	0.10	11	260	56	C	1	*
	259	1977	6	18	13	35	41.390	18.631	-67.938	14.9	3.20	3.9	217	11	10.9	120	35	38.3	321	52	68	0.15	5	282	..	D	1	*
	260	1977	6	23	1	52	35.640	18.050	-67.923	58.9	2.70	4.3	311	12	2.5	45	18	68.5	190	68	68	0.13	7	295	..	D	1	*
	261	1977	6	23	6	5	18.310	18.039	-66.832	14.3	1.40	0.6	93	28	1.1	202	31	1.4	330	45	68	0.10	10	176	54	C	1	*
	262	1977	6	24	14	8	54.920	18.708	-65.399	19.4	2.60	4.9	136	15	2.6	235	31	3.6	23	54	68	0.09	8	331	92	D	1	*
	263	1977	6	25	7	59	27.130	17.962	-67.386	32.8	2.50	2.0	106	7	4.0	198	15	7.9	352	73	68	0.10	6	205	58	D	1	*
	264	1977	6	26	10	16	5.560	18.884	-67.361	2.8	3.70	65.6	25	8	>99.9	120	35	58.6	284	53	68	0.01	4	354	..	D	1	*
	265	1977	6	26	13	21	32.400	19.013	-67.931	1.0	3.70	3.2	157	14	19.2	253	21	2.4	35	64	68	0.15	10	324	..	D	1	*
	266	1977	6	27	17	17	11.530	18.090	-65.811	41.8	1.90	5.9	316	5	15.8	48	21	8.6	214	68	68	0.06	5	302	55	D	1	*
	267	1977	6	29	5	51	20.970	18.241	-67.816	26.6	3.40	5.4	326	17	1.3	71	40	2.0	219	45	68	0.13	9	211	77	D	1	*
	268	1977	6	29	14	8	15.020	18.672	-68.045	1.7	3.10	3.2	24	28	10.9	130	28	52.5	257	48	68	0.18	5	301	..	D	1	*
	269	1977	7	3	1	1	2.940	18.835	-65.342	27.5	2.50	1.5	242	0	3.9	332	0	>99.9	90	68	0.03	5	340	..	D	1	*	
	270	1977	7	3	15	58	42.960	18.145	-65.993	15.7	2.60	4.6	14	9	5.9	112	43	2.2	275	45	68	0.27	8	112	22	C	1	*
	271	1977	7	5	4	54	6.600	18.729	-65.714	19.3	2.50	2.4	303	4	26.0	35	24	21.0	205	65	68	0.09	6	321	79	D	1	*
	272	1977	7	6	00	9	41.970	18.515	-66.895	17.5	2.30	1.0	268	1	2.2	178	1	4.6	43	88	68	0.16	11	213	25	C	1	*
	273	1977	7	6	8	32	24.030	18.726	-65.647	20.6	2.90	4.6	266	19	2.8	4	23	10.9	140	59	68	0.11	8	318	86	D	1	*
	274	1977	7	8	20	53	47.350	18.338	-67.451	33.1	3.20	1.9	84	11	10.4	346	36	4.6	188	51	68	0.14	7	150	55	D	1	*
	275	1977	7	8	23	12	46.120	18.276	-65.996	123.3	1.80	9.7	343	4	4.1	252	10	2.6	95	79	68	0.11	8	163	24	D	1	*
	276	1977	7	9	5	37	23.360	18.422	-67.493	17.2	2.90	1.7	77	10	10.5	343	21	3.9	190	66	68	0.11	6	297	99	D	1	*
	277	1977	7	11	9	51	59.260	18.158	-65.959	26.7	1.70	3.0	45	9	1.6	312	16	4.1	164	71	68	0.08	6	131	25	C	1	*
	278	1977	7	11	18	49	41.960	18.345	-65.895	16.6	2.80	1.1	273	21	1.8	174	22	3.1	4	58	68	0.05	6	245	34	C	1	*
279	1977	7	11	23	18	22.710	17.881	-66.548	0.4	1.80	2.6	272	0	13.6	182	1	>99.9	2	88	68	0.08	5	265	49	D	1	*	
280	1977	7	12	7	13	23.860	18.121	-65.996	27.6	1.50	1.4	195	3	1.2	285	18	2.9	95	71	68	0.07	7	124	25	B	1	*	
281	1977	7	12	12	20	44.200	18.042	-66.818	12.1	1.70	0.8	103	10	1.3	8	27	1.1	211	60	68	0.10	10	176	29	C	1	*	
282	1977	7	13	9	10	2.710	18.703	-66.664	10.0	2.00	3.3	167	7	1.3	73	28	2.6	269	60	68	0.15	10	267	71	D	1	*	
283	1977	7	13	12	6	46.130	17.972	-65.556	1.1	3.10	1.7	314	8	1.4	48	24	0.7	207	64	68	0.05	11	316	65	C	1	*	
284	1977	7	13	14	44	56.320	18.533	-68.328	22.4	2.90	2.4	115	26	1.5	7	33	4.3	235	45	68	0.05	6	323	..	D	1	*	
285	1977	7	15	00	11	29.520	18.768	-65.043	20.0	3.10	22.5	328	0	>99.9	238	0	>99.9	270	89	68	0.05	4	340	..	D	1	*	
286	1977	7	15	4	22	45.910	17.906	-65.411	7.0	2.00	3.5	32	11	4.3	292	43	2.1	134	44	68	0.10	7	328	82	D	1	*	
287	1977	7	15	5	9	28.510	17.920	-65.413	8.3	2.00	2.0	306	17	3.0	44	25	1.2	186	59	68	0.05	6	328	89	D	1	*	
288	1977	7	15	6	3	41.310	18.942	-64.673	51.9	2.70	37.7	149	11	9.5	56	14	>99.9	275	72	68	0.10	5	352	..	D	1	*	
289	1977	7	15	6	3	510	18.010	-65.586	16.8	2.00	7.0	340	0	6.0	70	4	53.8	250	86	68	0.18	6	317	61	D	1	*	
290	1977	7	15	10	57	10.620	17.958	-65.512	7.0	2.10	0.8	293	7	1.0	29	36	0.6	194	52	68	0.03	8	322	70	C	1	*	
291	1977	7	18	2	29	13.440	17.796	-68.085	42.4	2.90	4.6	247	14	2.0	145	42	54.9	351	44	68	0.19	7	305	..	D	1	*	
292	1977	7	19	1	21	51.840	18.574	-66.478	80.8	1.60	2.5	271	14	6.2	173	32	1.8	22	54	68	0.10	9	279	46	D	1	*	

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC) yr mo d h min s	North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes				Rms No. (s)	ob	cap	RM	n	auth	*
					M	a (km)	Tr p1 b (km)	Tr p1 c (km)	Tr p1 %						
PRN77	293 1977	7 19 4 13 54.900	18.766	-66.124	16.0	1.30	0.5 261 0	0.7 351 0	71.2 90 90	68 0.06	7 306 72	n	1		
	294 1977	7 19 23 22 3.220	19.414	-67.436	50.0	2.60	9.0 72 9	85.2 340 9	>99.9 205 77	68 0.01	4 310	n	1		
	295 1977	7 20 7 41 15.660	18.021	-66.776	16.6	1.10	3.4 351 0	1.8 81 2	97.5 261 88	68 0.21	8 184 49	n	1		
	296 1977	7 20 15 34 57.840	18.719	-67.297	21.7	2.30	2.0 65 28	4.4 316 30	11.1 188 46	68 0.22	9 264	n	1		
	297 1977	7 21 2 47 40.120	17.505	-67.890	3.1	3.40	6.8 348 5	37.9 254 41	4.0 84 48	68 0.10	5 291	n	1		
	298 1977	7 21 20 6 48.980	18.030	-66.206	15.9	1.80	0.7 97 10	1.2 4 19	2.3 213 68	68 0.08	9 201 29	C	1		
	299 1977	7 21 20 46 46.670	18.281	-66.249	30.4	2.10	3.1 244 3	8.2 153 27	5.0 339 62	68 0.07	5 193 38	D	1		
	300 1977	7 22 11 12 1.670	17.889	-68.692	48.0	3.60	2.1 246 25	14.2 350 27	5.1 119 51	68 0.07	7 348	n	1		
	301 1977	7 23 8 39 49.450	18.681	-68.377	0.3	3.20	11.4 256 21	4.8 355 22	8.7 126 58	68 0.07	5 323	n	1		
	302 1977	7 25 7 27 31.280	18.113	-67.733	46.1	3.10	7.9 181 11	2.8 87 21	14.9 297 66	68 0.15	7 176 74	n	1		
	303 1977	7 26 00 23 19.830	18.198	-66.163	78.0	1.60	8.3 347 23	4.4 94 35	3.2 231 46	68 0.10	7 134 22	C	1		
	304 1977	7 26 16 32 53.380	18.013	-65.731	9.3	2.90	3.2 125 12	1.7 32 14	1.1 254 71	68 0.05	6 303 46	D	1		
	305 1977	7 28 00 3 33.000	17.517	-65.758	29.7	1.70	5.3 109 5	4.6 199 7	39.0 344 81	68 0.11	6 323 88	D	1		
	306 1977	7 28 19 37 24.780	18.420	-66.222	62.4	1.30	15.8 359 0	8.8 88 11	6.6 269 78	68 0.14	5 314 53	D	1		
	307 1977	7 29 14 40 1.920	18.828	-65.329	19.1	2.80	>99.9 69 11	8.5 329 40	54.1 172 47	68 0.15	4 319	n	1		
	308 1977	7 30 16 20 0.190	17.905	-67.322	34.2	2.60	2.4 93 4	4.7 185 18	58.9 351 71	68 0.15	6 211 66	D	1		
	309 1977	7 31 4 50 26.240	18.810	-65.818	106.3	2.30	30.7 110 15	18.3 208 29	6.7 356 56	68 0.07	5 341 86	D	1		
	310 1977	8 6 11 33 49.990	17.913	-67.786	78.1	3.00	8.4 4 8	2.1 99 31	6.5 262 57	68 0.13	8 247 91	D	1		
	311 1977	8 6 16 41 32.680	18.610	-67.644	26.5	3.60	>99.9 145 4	3.0 53 28	7.7 242 61	68 0.07	5 320	n	1		
	312 1977	8 7 5 4 17.260	17.887	-66.260	20.9	1.40	2.3 103 4	4.5 104 11	7.9 354 78	68 0.22	10 276 40	D	1		
	313 1977	8 7 10 54 27.920	18.123	-65.934	42.9	1.80	3.9 239 7	17.3 331 19	9.3 179 69	68 0.03	5 249 30	D	1		
	314 1977	8 8 14 33 2.880	18.374	-65.946	2.4	1.20	10.5 7 2	2.0 276 4	20.1 124 85	68 0.03	5 262 37	D	1		
	315 1977	8 8 20 16 10.840	18.135	-68.089	11.7	2.20	28.6 201 29	>99.9 91 32	>99.9 323 44	68 0.03	4 349	n	1		
	316 1977	8 9 7 9 27.660	19.077	-66.381	2.1	1.80	1.3 299 34	2.5 55 34	1.9 177 38	68 0.08	8 312	n	1		
	317 1977	8 9 9 25 28.800	19.124	-66.389	27.1	1.80	2.7 97 7	2.3 190 22	55.8 351 66	68 0.13	10 317	n	1		
	318 1977	8 9 18 13 32.990	18.585	-66.127	74.9	2.00	2.4 88 5	7.4 182 34	3.4 351 55	68 0.12	8 271 42	D	1		
	319 1977	8 9 18 35 59.050	18.698	-67.716	26.6	3.30	13.2 163 7	4.2 71 15	7.1 277 73	68 0.26	8 268 71	D	1		
	320 1977	8 9 20 22 51.880	18.099	-66.497	12.0	1.10	1.2 99 19	3.3 354 37	2.5 210 46	68 0.15	8 161 20	C	1		
	321 1977	8 10 11 37 4.680	17.234	-67.585	17.7	2.80	6.3 24 1	3.3 114 22	49.8 292 67	68 0.15	6 277	n	1		
	322 1977	8 13 11 19 11.110	17.914	-65.959	17.5	2.40	3.5 237 11	6.9 336 37	44.7 133 50	68 0.25	4 275 43	D	1		
	323 1977	8 12 13 49.610	18.905	-65.345	19.3	3.00	>99.9 228 10	22.5 136 12	9.4 356 74	68 0.04	5 343	n	1		
	324 1977	8 12 6 29 17.420	18.412	-66.149	88.7	2.90	1.6 281 0	5.0 191 11	3.1 11 79	68 0.11	10 201 42	D	1		
	325 1977	8 14 15 53 9.560	18.714	-68.446	12.7	3.90	3.5 28 8	22.9 126 43	17.0 290 45	68 0.10	7 323	n	1		
	326 1977	8 14 16 14 9.430	18.015	-65.505	9.3	1.50	1.7 308 6	2.0 39 13	1.2 194 75	68 0.09	9 323 69	D	1		
	327 1977	8 15 10 8 15.320	18.025	-65.514	8.4	1.50	1.5 281 18	2.1 23 34	1.2 167 50	68 0.15	10 263 43	D	1		
	328 1977	8 16 3 15 27.260	17.818	-66.252	11.9	1.60	3.3 347 17	1.3 83 19	2.3 219 64	68 0.15	10 263 43	D	1		
	329 1977	8 16 10 6 33.650	18.865	-67.462	47.4	2.80	3.6 73 6	7.0 338 41	21.4 170 48	68 0.37	11 284 88	D	1		
	330 1977	8 16 22 5 8.660	19.277	-67.226	29.8	2.70	2.1 115 13	2.7 209 16	42.2 348 69	68 0.09	8 299	n	1		
	331 1977	8 17 5 42.160	18.170	-68.220	19.7	2.80	5.0 12 3	2.7 279 45	7.8 105 44	68 0.14	7 343	n	1		
	332 1977	8 18 9 49 31.620	19.073	-64.859	19.4	2.90	38.5 318 0	8.5 227 22	>99.9 48 67	68 0.22	5 350	n	1		
	333 1977	8 19 4 21 2.800	17.865	-66.868	8.5	1.60	0.4 269 5	2.2 2 37	0.7 172 52	68 0.06	10 233 45	C	1		
	334 1977	8 19 19 5 12.180	18.612	-66.748	19.0	2.40	1.6 84 4	2.4 353 21	3.9 184 68	68 0.18	12 229 51	D	1		
	335 1977	8 21 8 13 57.660	18.517	-65.632	15.8	2.40	12.0 329 0	>99.9 239 0	>99.9 270 89	68 0.07	5 336 71	D	1		

Table 8.---Catalog of 1977 earthquakes located by the HYPOELLIPSE program---Continued

Catalog		Origin time (UTC)							North		East		Focal		Error ellipsoid axes								Rms No.		Hypo					
Name	Index	yr	mo	d	h	m	s	latitude	(deg)	longitude	(deg)	depth	(km)	a	Tr	Pl	b	c	Tr	Pl	c(km)	Tr	Pl	%	ob	Gap	Dm	Q	auth	*
PRN77	336	1977	8	22	12	16	4.040	18.862	-67.113	17.0	2.10	2.7	63	1	4.1	333	2	>99.9	180	87	68	0.18	8	317	69	D	1	1	1	*
	337	1977	8	23	20	4	26.280E	18.082	-66.485	0.0	1.70	0.8	276	0	2.1	6	0	>99.9	90	90	68	0.25	10	168	21	C	1	1	1	*
	338	1977	8	24	16	34	19.870	18.811	-67.847	5.8	2.90	15.6	144	26	3.3	39	29	11.6	268	49	68	0.34	9	280	89	D	1	1	1	1
	339	1977	8	25	3	17	20.060	18.122	-66.336	22.2	0.90	2.6	310	24	1.9	56	32	6.2	191	48	68	0.13	7	180	20	D	1	1	1	1
	340	1977	8	25	9	51	3.300	18.424	-68.439	28.1	2.90	3.4	69	2	7.0	339	4	>99.9	185	85	68	0.13	8	331	..	D	1	1	1	1
	341	1977	8	26	15	17	20.690	18.184	-67.580	55.7	2.20	1.7	90	15	4.9	193	40	0.3	344	46	68	0.19	12	162	56	D	1	1	1	1
	342	1977	8	26	17	16	27.460	18.352	-66.142	1.7	0.70	1.2	258	0	3.6	348	0	53.9	90	89	68	0.11	6	208	37	D	1	1	1	1
	343	1977	8	27	00	23	13.730E	18.240	-66.072	0.8	2.30	2.3	254	5	3.3	346	22	7.0	151	67	68	0.30	9	290	32	D	1	1	1	1
	344	1977	8	27	15	12	43.870	19.143	-66.472	8.3	2.70	1.8	284	0	9.2	14	0	>99.9	90	89	68	0.09	9	289	..	D	1	1	1	1
	345	1977	8	27	15	15	0.380	19.062	-66.425	65.6	2.00	3.3	294	21	3.6	33	24	35.3	167	57	68	0.11	7	315	..	D	1	1	1	1
	346	1977	8	28	8	34	8.300	18.116	-65.523	9.5	2.10	7.6	256	22	11.9	2	34	4.6	139	47	68	0.02	5	326	70	D	1	1	1	1
	347	1977	8	29	7	38	39.190	18.681	-65.460	22.4	3.00	3.0	22	33	3.8	264	35	9.3	142	37	68	0.18	13	329	..	D	1	1	1	1
	348	1977	8	30	3	40	23.820	19.252	-66.368	26.8	2.30	7.2	230	14	4.1	136	17	85.6	357	67	68	0.20	8	308	..	D	1	1	1	1
	349	1977	8	30	9	29	21.750	18.101	-66.881	14.9	1.20	0.5	204	13	0.4	105	34	0.5	311	52	68	0.04	8	151	24	R	1	1	1	1
	350	1977	8	31	6	29	50.210	18.035	-65.686	13.7	1.40	2.7	301	8	1.6	35	21	1.1	192	67	68	0.09	8	304	50	D	1	1	1	1
	351	1977	8	31	17	7	55.270	19.057	-65.347	1.3	3.10	2.7	357	24	4.5	100	27	1.9	232	52	68	0.14	12	316	..	D	1	1	1	1
	352	1977	8	31	20	14	8.990	18.201	-66.046	24.5	1.10	1.5	239	2	17.0	148	12	4.4	338	77	68	0.10	6	173	33	D	1	1	1	1
	353	1977	9	2	3	58	32.070	19.135	-66.830	13.6	2.40	2.9	109	11	4.1	204	26	22.6	359	61	68	0.18	9	282	..	D	1	1	1	1
	354	1977	9	2	9	34	31.700	18.161	-66.155	32.2	0.90	1.0	81	6	1.5	350	9	2.0	204	79	68	0.11	11	66	21	R	1	1	1	1
	355	1977	9	2	16	52	3.670	18.405	-66.172	13.5	0.80	2.2	262	3	7.4	171	6	18.6	19	83	68	0.10	5	232	34	D	1	1	1	1
	356	1977	9	4	3	19	2.630	18.427	-66.548	84.3	2.60	5.5	180	4	1.4	89	5	3.2	308	83	68	0.14	13	204	43	D	1	1	1	1
	357	1977	9	5	3	00	10.930	17.988	-66.751	106.0	1.90	5.4	100	7	15.4	8	18	29.3	210	70	68	0.02	5	187	36	D	1	1	1	1
	358	1977	9	6	19	23	41.760	18.185	-66.863	16.0	1.90	0.7	101	4	1.5	192	10	3.5	350	79	68	0.11	10	128	31	R	1	1	1	1
	359	1977	9	8	2	48	12.900	17.970	-65.379	10.1	2.10	2.6	148	11	3.8	54	18	1.3	267	68	68	0.05	6	330	83	D	1	1	1	1
	360	1977	9	8	5	35	10.240	18.033	-65.404	11.1	1.90	4.9	249	8	12.8	341	12	4.0	126	75	68	0.08	5	331	79	D	1	1	1	1
	361	1977	9	8	4	11	0.090	18.292	-67.881	22.2	3.80	9.7	313	13	2.6	52	36	5.5	207	51	68	0.19	9	248	83	D	1	1	1	1
	362	1977	9	11	7	13	0.740	17.874	-66.139	13.6	1.10	3.4	330	18	1.7	230	29	1.1	88	55	68	0.08	7	320	46	D	1	1	1	1
	363	1977	9	11	19	45	35.030	17.874	-68.359	12.5	3.10	3.1	337	9	1.3	72	32	0.6	234	56	68	0.04	8	333	..	D	1	1	1	1
	364	1977	9	12	21	58	2.380	18.167	-66.203	40.3	0.80	2.4	76	15	3.8	176	33	4.9	326	52	68	0.13	7	169	17	C	1	1	1	1
	365	1977	9	12	23	17	59.070	18.795	-65.129	4.9	3.80	6.5	181	10	4.4	280	42	25.3	80	46	68	0.28	12	325	..	D	1	1	1	1
	366	1977	9	13	1	2	49.610	18.923	-64.991	20.0	2.90	26.2	325	1	>99.9	234	11	12.9	61	78	68	0.07	4	341	..	D	1	1	1	1
	367	1977	9	13	8	31	41.990	17.295	-65.078	4.2	2.70	4.4	201	19	1.3	304	33	9.5	86	50	68	0.07	8	340	..	D	1	1	1	1
	368	1977	9	14	12	46	18.140	18.089	-66.066	26.3	1.50	0.7	81	3	1.0	350	8	1.6	191	81	68	0.08	10	156	24	C	1	1	1	1
	369	1977	9	14	14	19	24.180	18.187	-67.351	14.1	2.50	5.9	227	9	1.7	133	21	2.9	338	66	68	0.25	10	203	34	D	1	1	1	1
	370	1977	9	14	17	27	56.750	18.138	-65.300	3.5	2.00	1.2	200	13	0.9	104	28	1.7	312	58	68	0.02	6	333	92	C	1	1	1	1
	371	1977	9	16	7	47	16.220	18.072	-66.355	57.5	1.60	2.6	4	14	1.7	99	21	1.9	243	64	68	0.11	12	262	23	D	1	1	1	1
	372	1977	9	17	19	36	48.780	18.343	-66.142	66.7	2.10	6.0	179	28	3.1	289	33	3.8	57	44	68	0.18	9	176	29	D	1	1	1	1
	373	1977	9	18	11	45	4.470	18.702	-67.103	83.5	2.30	18.3	197	25	2.4	94	27	3.9	323	51	68	0.17	9	302	53	D	1	1	1	1
	374	1977	9	20	16	21	10.210	18.033	-65.506	5.6	2.70	5.1	183	15	3.3	88	19	6.0	308	65	68	0.19	9	322	69	D	1	1	1	1
	375	1977	9	20	18	37	43.330	18.651	-65.925	70.6	2.00	5.5	186	33	2.8	69	35	2.4	306	37	68	0.09	8	303	64	D	1	1	1	1
	376	1977	9	22	9	15	36.540	18.618	-67.006	27.3	2.40	1.8	324	3	4.3	233	34	1.0	59	55	68	0.07	8	311	..	D	1	1	1	1
	377	1977	9	22	15	8	59.730	18.240	-67.192	21.7	1.90	2.8	268	22	1.0	18	39	1.1	156	42	68	0.10	9	227	28	D	1	1	1	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes					Ems No.			Hypo								
	yr	mo	d h min s				M	a(km)	Tr Pl	b(km)	Tr Pl	c(km)	Tr Pl	%		(s)	ob	Gap	DM	0	auth	*	
PRN77	378	1977	9 23 14 59 26.310	18.606	-65.433	21.5	3.80	>99.9	243	8	18.8	151	17	8.1	357	71	68	0.04	5	337	93	D	1
	379	1977	9 25 22 9 5.700	18.996	-66.044	56.6	2.60	11.8	52	18	6.7	313	26	58.4	173	57	68	0.18	6	299	..	D	1
	380	1977	9 27 4 16 38.580	18.219	-65.892	16.1	2.00	0.4	150	4	0.2	242	27	1.8	52	62	68	0.01	6	233	30	C	1
	381	1977	9 27 17 40.430	18.235	-65.865	15.0	1.70	3.9	87	26	1.5	333	38	1.2	201	40	68	0.07	6	197	31	D	1
	382	1977	9 27 19 54 23.320	18.084	-66.480	8.5	1.90	1.0	98	2	2.5	8	5	4.3	209	84	68	0.16	10	167	22	C	1
	383	1977	9 28 5 25 15.510	18.636	-65.511	30.1	3.50	>99.9	64	15	11.7	328	19	33.4	189	65	68	0.11	5	331	..	D	1
	384	1977	9 28 7 36 11.140	18.026	-66.435	19.9	2.00	0.7	261	1	1.6	351	2	2.6	144	87	68	0.10	11	205	29	C	1
	385	1977	9 29 16 9 43.790F	18.328	-66.163	0.3	1.90	2.1	272	1	3.5	2	3	75.4	163	86	68	0.12	5	280	24	D	1 *
	386	1977	9 29 17 1 35.350E	18.351	-66.177	1.4	1.40	2.7	48	4	5.9	317	13	36.7	155	76	68	0.06	5	284	33	D	1 *
	387	1977	9 30 1 17 43.920	18.684	-66.118	75.4	2.20	2.5	289	27	2.8	42	36	8.8	172	41	68	0.16	12	267	52	D	1
	388	1977	9 30 11 48 2.990	18.399	-67.347	11.0	2.90	2.6	178	2	1.1	268	3	1.6	54	86	68	0.19	13	180	37	C	1
	389	1977	9 30 13 28 22.140	18.533	-64.974	17.2	2.60	4.7	80	12	86.0	347	14	7.3	209	71	68	0.13	6	354	..	D	1
	390	1977	10 1 6 24 18.010	18.583	-66.243	35.8	2.60	1.7	276	2	3.4	6	13	7.1	177	76	68	0.21	14	229	53	D	1
	391	1977	10 5 10 56 17.760	18.639	-67.487	9.9	3.70	2.3	67	1	12.7	157	15	4.0	334	74	68	0.18	7	251	..	D	1
	392	1977	10 5 12 16 28.590	18.228	-67.579	15.9	2.70	1.6	80	1	3.1	170	21	7.8	348	68	68	0.24	10	198	52	D	1
	393	1977	10 6 18 29 44.030	18.006	-65.558	6.6	2.50	0.9	356	1	0.5	87	21	0.6	264	68	68	0.03	9	320	71	C	1
	394	1977	10 6 18 39 55.840	17.713	-65.576	38.2	2.40	2.7	137	13	3.7	231	16	>99.9	9	69	68	0.16	6	332	..	D	1
	395	1977	10 6 21 26 27.020	17.981	-65.271	7.8	3.30	13.5	118	18	38.9	19	27	6.9	237	56	68	0.22	6	335	..	D	1
	396	1977	10 6 23 21 36.540	18.101	-67.444	22.2	2.40	7.9	228	11	2.0	134	19	4.1	346	67	68	0.21	8	248	..	D	1
	397	1977	10 7 00 39 50.530	17.913	-66.535	10.9	2.50	11.6	2	2	2.6	93	15	4.0	265	74	68	0.19	7	260	53	D	1
	398	1977	10 7 16 24 59.300	17.809	-67.990	19.3	3.30	27.2	37	13	2.7	136	33	8.8	289	53	68	0.16	8	294	..	D	1
	399	1977	10 8 12 00 27.630	18.451	-66.230	102.2	3.20	1.7	93	9	7.8	185	17	4.3	337	70	68	0.13	10	205	41	D	1
	400	1977	10 11 9 32.220	18.110	-65.983	15.8	1.50	3.9	15	5	6.6	283	19	12.1	120	70	68	0.03	5	306	37	D	1
	401	1977	10 11 19 27 5.350	18.284	-66.436	37.5	1.70	1.6	274	5	3.2	6	24	4.7	172	65	68	0.13	8	147	36	C	1
	402	1977	10 11 20 7 17.030	18.124	-65.993	27.5	2.20	1.0	238	3	8.7	329	13	2.9	135	76	68	0.06	6	228	36	D	1
	403	1977	10 12 15 9 54.730	19.220	-67.257	11.4	3.80	3.6	85	13	6.1	180	20	2.3	325	65	68	0.20	11	297	..	D	1
	404	1977	10 12 20 32 38.010	18.064	-66.486	5.8	2.10	1.2	93	2	2.7	183	4	7.9	337	85	68	0.14	7	181	21	D	1
	405	1977	10 13 6 31 50.230	18.597	-65.554	37.6	2.50	88.1	142	13	6.7	44	31	11.8	251	55	68	0.01	5	352	..	D	1
	406	1977	10 13 10 13 5.070	17.861	-66.161	14.7	2.10	7.7	347	11	9.9	248	41	2.2	90	47	68	0.09	5	291	58	D	1
	407	1977	10 14 14 43 35.580	19.242	-66.405	20.0	3.30	6.3	273	0	44.6	3	0	>99.9	90	90	68	0.08	5	300	..	D	1
	408	1977	10 14 20 53 52.420	17.874	-65.945	13.9	1.70	2.8	63	1	6.7	153	19	93.2	331	70	68	0.04	5	289	49	D	1
	409	1977	10 15 7 4 52.640	18.889	-66.776	28.5	2.20	5.8	61	1	6.7	331	1	>99.9	195	88	68	0.09	5	318	..	D	1
	410	1977	10 16 15 27 7.900	17.655	-67.500	10.8	3.30	4.5	288	2	5.6	19	23	42.4	194	66	68	0.34	8	249	94	D	1
	411	1977	10 17 21 19 47.300	18.743	-65.020	21.0	2.90	15.5	152	4	3.3	243	19	4.2	50	70	68	0.15	8	349	..	D	1
	412	1977	10 18 21 10 40.350	19.020	-65.244	0.5	4.10	15.2	121	19	6.5	23	21	6.5	249	60	68	0.17	7	329	..	D	1
	413	1977	10 19 9 9 40.110	18.395	-67.282	7.9	2.50	3.1	357	1	1.3	87	6	3.4	258	83	68	0.18	9	174	32	C	1
	414	1977	10 19 20 10 47.170E	18.354	-66.153	1.3	2.10	1.2	68	1	2.1	338	5	16.9	170	84	68	0.16	8	209	27	D	1 *
	415	1977	10 22 15 29 51.340	19.159	-65.389	56.5	2.90	7.6	291	3	2.9	22	23	21.4	194	66	68	0.06	6	337	..	D	1
	416	1977	10 22 19 39 19.330	19.026	-68.505	4.7	3.20	2.9	35	13	>99.9	299	23	49.2	153	63	68	0.09	7	320	..	D	1
	417	1977	10 23 2 23 39.540	18.383	-65.919	41.3	1.60	0.8	258	15	1.2	157	34	1.1	8	51	68	0.05	10	260	38	C	1
	418	1977	10 23 16 5 27.070	18.285	-66.302	22.7	1.70	1.0	90	5	1.9	182	23	2.6	349	66	68	0.17	13	181	24	C	1
	419	1977	10 23 20 24 35.640	18.791	-65.354	18.8	3.40	4.0	354	26	10.9	106	38	3.8	239	41	68	0.17	9	318	..	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	Origin time (UTC)						North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes								Rms No. (s)	ob	Gap	DH	Hypo auth *				
	yr	mo	d	h	min	s				M	a (km)	Tr Pl	b (km)	Tr Pl	c (km)	Tr Pl										
PRN77	420	1977	10	23	22	44	19.370	-65.214	6.7	3.30	6.3	110	12	3.9	17	16	2.8	235	69	68	0.21	15	324	..	D	1
	421	1977	10	24	22	15	0.350	-64.380	3.9	3.40	51.0	344	0	>9.9	254	0	>9.9	270	90	68	0.11	4	349	..	D	1
	422	1977	10	25	4	00	41.020	-67.568	27.4	2.70	7.6	282	0	35.2	12	0	>9.9	90	90	68	0.26	6	349	..	D	1
	423	1977	10	26	12	58	35.780	-66.921	11.0	1.90	0.4	93	18	2.8	350	36	0.8	204	48	68	0.14	6	233	47	D	1
	424	1977	10	27	17	28	6.200	-65.669	73.6	2.80	3.5	73	11	2.8	335	36	11.3	178	51	68	0.16	12	302	82	D	1
	425	1977	10	29	2	36	13.160	-66.504	65.4	3.80	1.8	276	1	4.3	6	7	6.7	177	82	68	0.16	12	228	46	D	1
	426	1977	10	30	4	48	15.450	-66.807	14.9	2.50	2.9	339	19	1.0	84	35	5.6	227	48	68	0.13	8	233	50	D	1
	427	1977	10	30	8	31	51.630	-67.040	0.1	2.60	1.4	90	3	2.6	359	13	4.7	192	76	68	0.08	6	248	87	D	1
	428	1977	10	31	20	26	48.820	-65.403	25.5	3.00	14.0	326	0	>9.9	236	0	>9.9	270	80	68	0.12	4	334	93	D	1
	429	1977	11	1	12	42	24.690	-66.173	62.6	3.50	1.3	280	7	2.9	14	29	3.6	177	50	68	0.14	13	168	41	C	1
	430	1977	11	2	4	55	34.400	-66.506	7.5	2.90	1.8	275	0	7.7	5	0	>9.9	90	90	68	0.12	11	275	..	D	1
	431	1977	11	2	5	12	47.350	-66.513	17.0	2.80	1.2	283	2	1.7	13	8	4.6	179	81	68	0.13	16	270	98	C	1
	432	1977	11	2	7	32	21.550	-66.495	27.5	2.80	1.5	279	0	3.0	9	0	>9.9	90	90	68	0.14	12	266	91	D	1
	433	1977	11	2	9	10	50.820	-66.550	36.5	2.60	2.6	301	5	5.1	32	9	>9.9	183	79	68	0.10	6	317	..	D	1
	434	1977	11	2	11	40	3.950	-66.505	15.9	2.50	0.7	286	0	1.0	16	0	>9.9	90	90	68	0.08	14	271	99	D	1
	435	1977	11	2	13	51	42.530	-66.494	17.1	2.80	1.3	50	1	2.0	320	1	>9.9	184	88	68	0.08	9	301	..	D	1
	436	1977	11	2	16	38	48.040	-66.274	53.9	2.60	5.2	71	5	5.0	337	35	29.6	169	54	68	0.10	6	326	84	D	1
	437	1977	11	2	23	7	25.530	-66.523	43.9	3.30	3.2	86	5	4.7	355	18	31.7	191	71	68	0.22	11	290	..	D	1
	438	1977	11	2	23	23	5.320	-66.513	16.3	3.20	0.8	291	0	1.3	21	0	>9.9	90	89	68	0.11	16	271	98	D	1
	439	1977	11	2	23	45	44.930	-66.533	27.0	2.70	6.9	234	5	3.6	141	22	>9.9	90	90	68	0.11	6	347	..	D	1
	440	1977	11	3	2	43	14.400	-66.564	42.3	2.60	4.3	78	2	2.9	347	14	29.9	176	75	68	0.10	7	332	..	D	1
	441	1977	11	3	4	37	7.830	-66.638	67.2	3.50	1.8	283	0	8.2	193	37	3.6	13	53	68	0.13	9	259	62	D	1
	442	1977	11	3	5	27	13.130	-66.515	1.9	3.20	1.6	276	0	8.1	6	0	>9.9	90	90	68	0.12	12	279	..	D	1
	443	1977	11	3	5	37	3.390	-66.514	15.8	3.10	1.3	284	0	2.4	14	0	>9.9	90	89	68	0.16	17	270	96	D	1
	444	1977	11	3	6	27	13.210	-66.958	14.3	2.40	1.7	22	12	1.2	283	39	0.7	126	48	68	0.12	13	230	37	C	1
	445	1977	11	3	8	1	59.200	-66.530	19.8	2.80	0.6	72	1	0.9	342	3	>9.9	190	86	68	0.02	6	303	..	D	1
	446	1977	11	3	8	18	35.740	-66.406	1.9	2.70	3.5	2	32	0.0	248	34	7.3	124	39	68	0.12	6	330	..	D	1
	447	1977	11	3	9	14	50.720	-66.517	16.1	3.00	1.8	267	0	2.3	357	0	>9.9	90	89	68	0.15	13	270	98	D	1
	448	1977	11	4	3	25	2.910	-66.519	27.1	2.50	5.3	243	5	3.1	151	22	>9.9	90	89	68	0.14	9	326	..	D	1
	449	1977	11	5	19	17	34.130	-67.685	13.0	3.80	5.0	230	2	9.8	321	37	2.3	137	52	68	0.20	11	306	90	D	1
	450	1977	11	6	2	00	53.890	-67.866	87.7	3.40	6.1	300	19	18.9	40	26	92.7	178	56	68	0.19	7	346	..	D	1
	451	1977	11	6	3	7	45.620	-65.942	49.8	2.20	13.6	205	32	5.0	321	34	82.3	84	30	68	0.44	4	322	32	D	1
	452	1977	11	7	20	3	13.950E	-66.123	0.2	2.10	3.7	324	0	11.0	234	0	>9.9	270	89	68	0.20	5	298	30	D	1
	453	1977	11	8	20	2	53.100	-66.160	21.1	2.10	2.5	54	3	7.8	322	34	>9.9	149	55	68	0.08	5	279	35	D	1
	454	1977	11	8	23	40	39.220	-67.464	13.9	3.40	3.8	206	18	2.2	103	34	19.8	319	50	68	0.22	16	300	..	D	1
	455	1977	11	9	20	14	50.280	-65.041	20.0	3.00	25.8	325	3	>9.9	234	10	11.5	72	79	68	0.06	5	343	..	D	1
	456	1977	11	14	20	45	26.170	-66.440	20.6	2.80	4.2	297	3	5.4	27	3	>9.9	162	85	68	0.16	7	332	..	D	1
	457	1977	11	16	4	41	41.550	-67.001	32.9	2.60	5.8	165	8	2.5	256	10	3.8	36	77	68	0.18	14	341	72	D	1
	458	1977	11	16	13	38	28.520	-66.797	12.4	3.00	1.3	271	5	3.1	2	17	2.1	165	72	68	0.26	15	169	31	C	1
	459	1977	11	18	4	36	59.140	-66.013	11.5	1.60	1.6	252	10	3.3	159	16	5.9	13	70	68	0.15	9	268	39	D	1
	460	1977	11	18	4	39	32.070	-66.269	103.8	2.30	3.4	88	2	9.3	179	25	2.9	354	64	68	0.16	11	233	49	D	1
	461	1977	11	19	1	8	40.640	-67.211	26.4	3.10	1.9	70	31	6.3	185	35	4.1	31	39	68	0.26	15	257	66	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog Name Index	yr	mo	d	h	min	s	North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes										Rms No. (s)	ob	Gap	PM	Q	auth	*	
										a (km)	Tr	Pl	b (km)	Tr	Pl	c (km)	Tr	Pl	%								
PRN77	462	1977	11	20	1	51	0.260	18.849	-66.068	39.8	2.30	2.9	55	9	2.2	320	28	13.5	162	60	68	0.05	6	323	82	D	1
	463	1977	11	20	19	5	22.320	18.036	-66.819	6.7	1.80	1.3	132	11	2.1	228	29	3.9	23	58	68	0.12	9	269	52	C	1
	464	1977	11	22	2	52	47.630	18.542	-66.538	22.0	2.40	2.9	91	5	9.4	0	10	26.0	207	78	68	0.21	7	255	49	D	1
	465	1977	11	27	18	29	50.600	18.872	-64.788	22.6	3.20	80.5	331	1	9.8	240	22	>99.9	64	67	68	0.18	5	354	..	D	1
	466	1977	11	28	18	16	8.190	18.444	-68.045	72.3	3.20	3.8	80	16	13.1	176	23	8.2	318	61	68	0.29	13	293	99	D	1
	467	1977	12	1	6	17	24.830	17.874	-67.618	20.0	3.30	30.4	346	0	>99.9	256	0	>99.9	270	90	68	0.15	5	350	..	D	1
	468	1977	12	1	19	36	51.320	18.353	-66.151	11.9	1.70	2.0	257	3	3.7	347	9	14.9	148	80	68	0.13	6	208	30	D	1
	469	1977	12	1	19	47	22.520	19.126	-66.127	16.4	2.70	2.4	302	0	3.3	32	0	>99.9	90	68	0.24	7	335	..	D	1	
	470	1977	12	1	21	22	2.920	19.224	-66.135	15.9	2.80	5.3	335	0	6.0	245	0	>99.9	270	89	68	0.26	9	322	..	D	1
	471	1977	12	1	22	56	7.780	19.201	-66.091	14.9	2.60	4.4	270	1	2.7	179	33	>99.9	2	56	68	0.17	8	331	..	D	1
	472	1977	12	1	23	43	44.380	19.048	-66.486	4.1	2.70	14.3	205	5	8.2	299	31	5.3	106	58	68	0.06	5	330	..	D	1
	473	1977	12	2	00	34	23.150	18.918	-65.314	44.5	3.10	7.1	49	19	21.6	306	33	85.6	164	50	68	0.10	5	352	..	D	1
	474	1977	12	2	00	45	9.710	19.113	-66.447	2.9	2.60	3.2	168	4	5.7	258	6	2.9	44	82	68	0.09	6	341	..	D	1
	475	1977	12	2	1	6	4.170	19.106	-66.517	7.9	3.30	1.7	264	9	2.8	169	28	19.4	11	60	68	0.17	12	270	98	D	1
	476	1977	12	2	1	7	53.010	19.150	-66.441	40.3	2.70	4.9	251	2	3.3	341	12	48.7	151	77	68	0.08	6	333	..	D	1
	477	1977	12	2	1	41	13.780	17.617	-66.450	81.8	2.30	16.9	104	20	7.2	211	40	>99.9	354	43	68	0.15	4	344	..	D	1
	478	1977	12	2	1	58	22.260	18.382	-66.230	3.4	2.60	3.5	257	10	6.2	350	13	41.3	130	73	68	0.08	5	306	36	D	1
	479	1977	12	2	3	44	53.170	19.189	-66.494	31.0	3.00	5.4	290	1	10.6	20	>99.9	173	87	68	0.24	7	289	..	D	1	
	480	1977	12	2	4	00	2.390	18.150	-67.344	0.5	3.00	2.4	185	7	1.7	94	8	6.3	315	79	68	0.18	7	168	60	C	1
	481	1977	12	2	20	12	15.490E	18.340	-66.140	1.3	1.90	1.5	72	2	3.1	342	10	17.2	174	79	68	0.17	7	202	25	D	1
	482	1977	12	2	20	26	36.720E	18.096	-66.489	1.1	1.90	2.3	187	1	1.0	97	2	48.7	303	87	68	0.21	10	159	21	C	1
	483	1977	12	3	2	52	41.730	17.957	-66.228	7.1	1.80	3.6	192	3	1.7	101	5	11.1	312	84	68	0.20	8	245	34	D	1
	484	1977	12	3	3	41	49.850	19.124	-66.484	18.9	2.60	16.1	27	1	7.3	297	2	>99.9	144	87	68	0.04	5	332	..	D	1
	485	1977	12	3	5	00	46.610	19.058	-66.953	34.1	3.10	1.1	83	5	2.5	352	14	26.9	192	75	68	0.19	11	269	93	D	1
	486	1977	12	3	11	2	10.820	19.180	-66.533	27.7	2.80	4.6	319	0	9.0	229	0	>99.9	270	89	68	0.10	6	334	..	D	1
	487	1977	12	3	12	35	58.920	18.790	-68.385	19.6	4.20	12.9	136	11	3.8	39	35	9.2	240	52	68	0.13	7	321	..	D	1
	488	1977	12	3	14	15	41.580	19.144	-66.513	6.7	3.50	2.1	260	11	4.2	164	27	23.1	11	60	68	0.18	10	273	..	D	1
	489	1977	12	3	16	33	55.790	18.521	-67.539	19.2	3.30	2.1	71	9	4.5	333	44	6.5	171	44	68	0.36	17	234	60	D	1
	490	1977	12	3	16	39	5.380	18.714	-67.568	5.0	2.70	1.9	65	19	4.6	170	36	3.8	313	47	68	0.26	11	259	76	D	1
	491	1977	12	4	8	42	26.820	19.177	-66.507	14.8	3.10	1.6	109	10	4.1	206	33	15.4	4	55	68	0.14	11	275	..	D	1
	492	1977	12	4	11	51	33.950	18.970	-67.667	3.6	2.90	18.4	140	20	5.1	242	30	8.7	21	52	68	0.23	6	280	98	D	1
	493	1977	12	6	5	31	40.990	18.971	-65.745	20.0	2.80	4.4	18	4	8.2	288	4	>99.9	153	84	68	0.15	7	339	..	D	1
	494	1977	12	7	8	38	9.760	18.318	-66.079	14.4	1.80	0.8	257	1	1.5	166	4	2.1	1	85	68	0.12	10	190	24	C	1
	495	1977	12	7	8	41	30.110	18.106	-66.083	26.2	1.50	1.0	80	1	1.4	350	2	2.8	196	87	68	0.10	9	148	22	C	1
	496	1977	12	7	23	18	28.600	18.930	-66.674	42.5	2.60	1.4	92	2	2.8	0	27	11.6	185	62	68	0.15	14	283	79	D	1
	497	1977	12	8	7	29	44.400	17.979	-66.244	6.7	2.20	6.9	12	4	3.0	103	6	26.0	249	82	68	0.18	6	240	35	D	1
	498	1977	12	8	9	32	43.740	17.999	-67.179	12.1	2.40	2.6	240	34	1.1	121	36	5.1	359	35	68	0.23	14	238	48	D	1
	499	1977	12	8	10	34	37.540	18.914	-66.702	25.2	2.70	4.3	176	18	2.1	76	28	8.7	294	55	68	0.22	10	269	90	D	1
	500	1977	12	8	13	7	38.630	18.037	-66.175	14.1	2.60	0.5	78	4	0.9	168	4	1.8	303	84	68	0.05	8	236	28	C	1
	501	1977	12	8	16	59	25.760	18.268	-66.085	20.5	1.50	2.5	243	9	79.1	145	40	12.0	343	48	68	..	4	209	34	D	1
	502	1977	12	11	1	50	14.170	18.841	-65.515	11.0	3.20	3.4	316	3	2.5	224	31	19.6	51	58	68	0.12	9	319	98	D	1
	503	1977	12	11	2	00	5.440	17.787	-65.548	17.0	2.80	5.3	170	1	16.1	260	1	>99.9	34	88	68	0.01	4	351	85	D	1
	504	1977	12	11	3	30	52.020	18.822	-66.332	17.9	2.20	2.1	57	1	2.8	327	2	66.9	174	87	68	0.13	8	316	75	D	1

Table 8.--Catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog	Origin time (UTC)			North latitude (deg)	East longitude (deg)	Focal depth (km)	Error ellipsoid axes						Rms No.			Hypo auth *											
	yr	mo	d				h	min	s	M	a (km)	Tr	Pl	b (km)	Tr		Pl	c (km)	Tr	Pl	% (s)	ob Gap	DM	Q			
PRN77	505	1977	12	11	9	6	24.400	-66.420	35.7	2.80	3.3	47	5	4.4	317	6	61.4	177	82	68	0.20	9	333	..	D	1	
	506	1977	12	11	14	42	57.990	-65.057	5.1	3.00	54.0	330	3	5.8	238	32	>99.9	65	57	68	0.11	5	354	..	D	1	
	507	1977	12	12	5	9	0.350	-66.207	15.3	2.30	5.0	162	6	1.5	254	20	1.2	56	69	68	0.12	7	215	25	D	1	
	508	1977	12	12	5	50	14.590	-65.266	5.9	3.30	7.4	333	7	2.5	239	31	38.4	75	58	68	0.12	8	330	..	D	1	
	509	1977	12	14	2	6	1.670	-66.277	7.1	1.60	1.6	97	4	2.1	188	13	5.7	351	76	68	0.10	8	310	41	D	1	
	510	1977	12	14	34	19.660	-65.136	42.2	2.90	15.9	201	4	7.6	110	9	48.9	314	80	68	0.20	7	337	..	D	1		
	511	1977	12	15	19	4	12.340	-68.069	107.5	3.50	12.4	180	5	6.1	273	36	4.1	83	53	68	0.23	11	318	..	D	1	
	512	1977	12	16	20	13	49.760	-66.150	1.4	1.70	1.5	74	1	3.0	344	10	17.6	170	79	68	0.13	6	203	25	D	1	
	513	1977	12	18	46	12	530	-66.087	109.8	2.20	7.3	182	27	3.1	290	32	2.1	60	45	68	0.10	10	246	35	D	1	
	514	1977	12	20	7	58	25.010	-67.333	4.8	2.50	3.9	66	30	11.2	182	37	4.7	309	38	68	0.23	8	285	81	D	1	
	515	1977	12	20	13	1	18.090	-67.946	53.7	2.80	5.5	317	30	9.4	206	32	2.9	80	43	68	0.17	8	275	91	D	1	
	516	1977	12	20	13	30	2.040E	-66.524	0.5	2.50	0.8	284	0	2.7	14	0	>99.9	90	89	68	0.15	9	188	40	D	1 *	
	517	1977	12	20	13	46	24.240	-67.420	10.9	2.60	1.3	61	34	3.5	178	34	1.6	300	37	68	0.15	11	252	74	D	1	
	518	1977	12	20	15	1	3.020	-66.108	83.6	2.70	1.1	295	9	5.0	201	19	7.3	49	68	68	0.03	6	240	47	D	1	
	519	1977	12	21	2	36	39.890	-66.701	9.4	2.10	2.0	41	9	2.3	303	39	1.2	142	49	68	0.14	11	307	52	D	1	
	520	1977	12	23	2	11	9.770	-67.223	20.8	3.10	21.3	344	3	>99.9	9	74	9	9.0	236	80	68	0.06	5	346	..	D	1
	521	1977	12	24	2	59	37.640	-66.491	25.8	2.10	80.1	151	6	9.2	243	20	6.1	45	69	68	0.02	5	323	86	D	1	
	522	1977	12	25	12	14	21.960	-66.071	13.5	1.90	0.8	91	1	1.1	1	1	2.6	226	88	68	0.15	12	99	24	B	1	
	523	1977	12	26	18	3	49.610	-64.966	15.9	2.80	4.2	277	0	9.2	7	0	>99.9	90	90	68	0.20	7	343	..	D	1	
	524	1977	12	27	5	42	39.750	-66.648	11.5	2.30	1.0	233	25	1.5	343	36	0.6	116	43	68	0.05	8	297	46	C	1	
	525	1977	12	31	23	2	1.050	-66.275	20.6	2.70	2.4	278	0	3.5	8	4	52.2	188	86	68	0.22	12	290	85	D	1	

Table 9.--References for catalog of 1977 earthquakes located by the HYPOELLIPSE program

[Cat, catalog; Auth no., authority number cited in table 8]

Cat Name	Auth no.	References	
		PRN77	1 U.S. Geological Survey, this report.

Table 10.--Remarks for catalog of 1977 earthquakes located by the HYPOELLIPSE program

Catalog	Remarks
Name Index	
PRN77	14 Probable blast attributed to road construction or quarries.
29	Do.
42	Do.
59	Do.
84	Do.
118	Do.
145	Do.
150	One of a 12-earthquake swarm that occurred north of the Virgin Islands in the Puerto Rico Trench.
151	Do.
152	Do.
165	Probable blast attributed to road construction or quarries.
175	Do.
183	One of a small swarm of earthquakes that were located on the south coast of Puerto Rico near the town of Central Aguirre.
184	Do.
185	Do.
186	Do.
188	Do.
189	Do.
197	Probable blast attributed to road construction or quarries.
205	A large earthquake, magnitude 4.5, that originated in the Puerto Rico Trench, northeast of Puerto Rico.
206	An aftershock of the magnitude 4.5 earthquake.
244	One of a small swarm of earthquakes that were located in the Puerto Rico Trench, northeast of Puerto Rico.
245	Do.
246	Do.
247	Do.
248	Do.
249	Do.
250	Do.
251	Do.
252	Do.
253	Do.
254	Probable blast attributed to road construction or quarries.
256	One of a swarm of earthquakes that were located in the Puerto Rico Trench, northeast of Puerto Rico.
337	Probable blast attributed to road construction or quarries.
343	Do.
385	Do.
386	Do.
414	Do.

Table 10.--Remarks for catalog of 1977 earthquakes located by the HYPOELLIPSE program--Continued

Catalog -----	Remarks
Name Index	
PRN77 452 Do.	
481 Do.	
482 Do.	
516 Do.	

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